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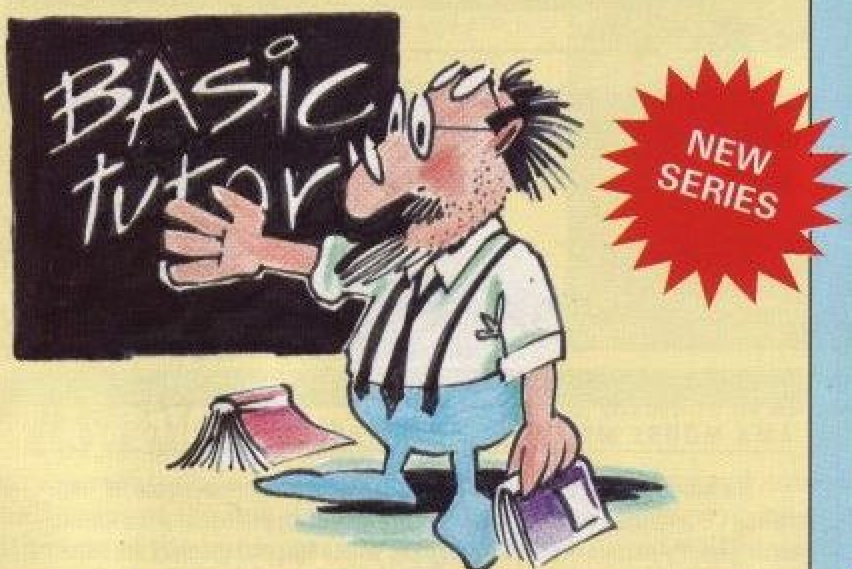
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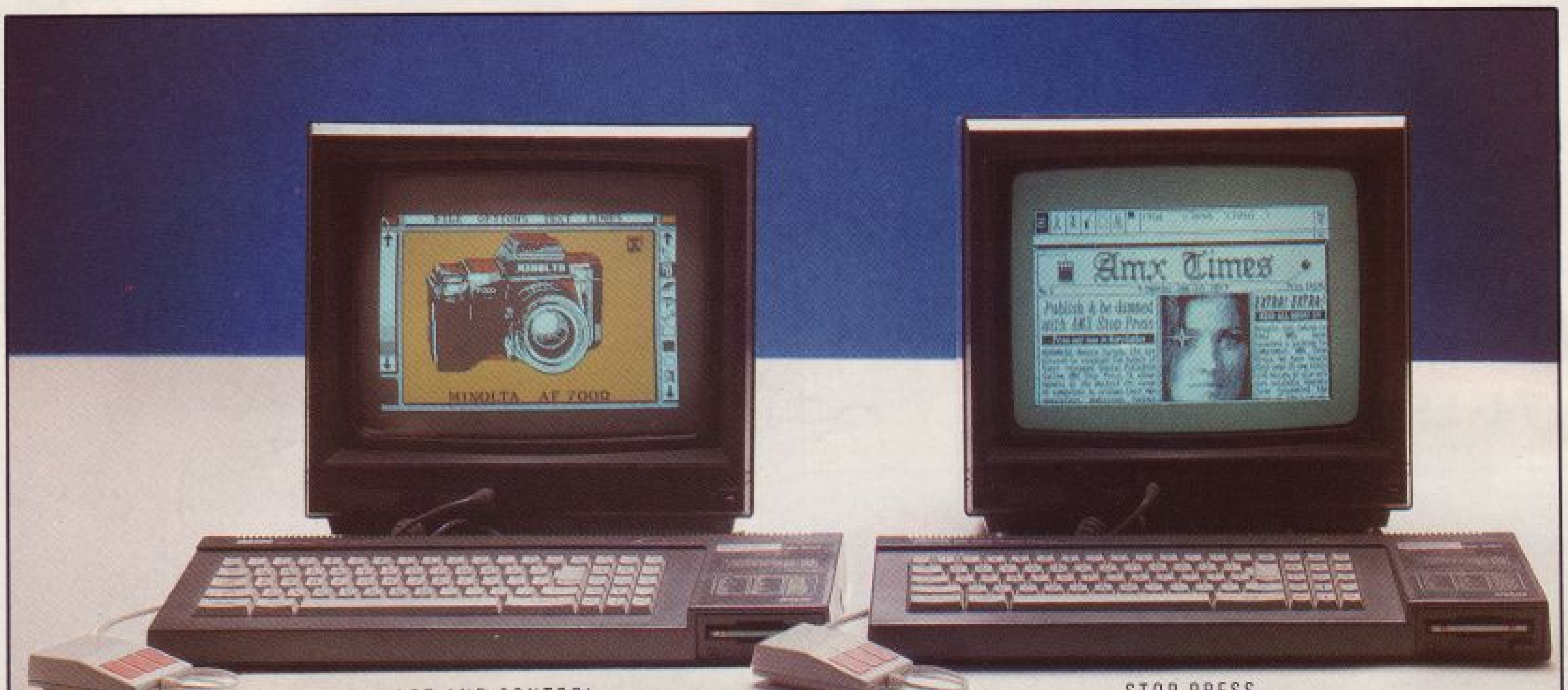
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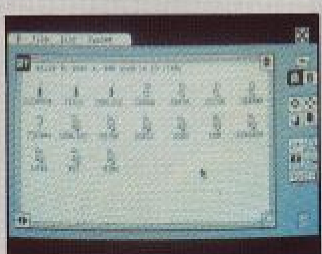
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Alan Sugar figures it just right

ALAN Sugar has produced yet another balance sheet oozing success. The Amstrad chairman answered the City pundits he blames for keeping his share prices down by announcing record sales and profits for the past 12 months.

Sales totalled £512 million, up 68 per cent over the previous year's £304 million. Pre-tax profits, too, were at a new high of £135 million – an increase of 80 per cent over the previous year.

Sugar told his shareholders: "Amstrad's growth record has been an amazing feat. During the past four years we have almost doubled sales and profits every 12 months.

"A major part of our success is our management philosophy. We have a small team of flexible decision makers with none of the bureacracy to be found in some companies with half our turnover".

However, the Stock Market was not impressed with the figures, and there was an immediate 20p drop in the value of Amstrad shares to 177p.

The detail which seems to have been missed is that the expected £140 million figure would have been exceeded if Amstrad had not acquired its new American and Spanish subsidiaries. The Vidco takeover cost £5 million and Indescomp cost £22 million, although neither of these were totally cash purchases.

Sugar revealed that more than 20 new leisure and business products would be released next year, among them "a range of business computers that will penetrate sectors of the market not covered by our existing products.

In his report, he said: "We have the largest new product development programme in the company's history.

"If Amstrad could achieve the penetration in other world markets that it now enjoys in the UK, I am convinced our sales turnover would increase at least fivefold".

Amstrad has expanded further internationally by adding the Spanish distributor Indescomp to its group of wholly owned subsidiaries overseas.

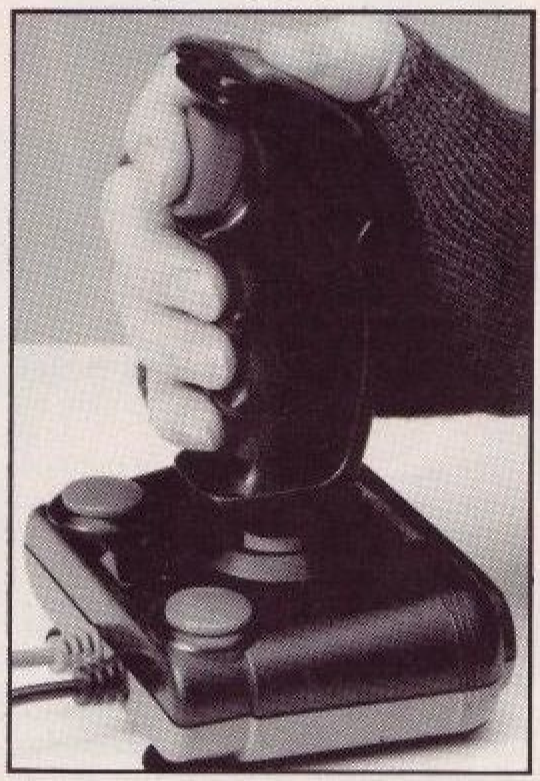
The new company is called Espana SA and will continue to be run by Jose Luis Dominguez who has also joined Amstrad's board of directors. A second appointment to the board is Marion Vannier who has masterminded Amstrad's domination of the French market as head of Amstrad International SA.





Jose Luis Dominguez and Marion Vannier join the board of directors as Amstrad expands internationally

One plug good, two plugs better



The Cheetah 125 Special may do wonders for your high scores but it clearly does not help your manicure

THE Cheetah 125 Special has solved the problem of not enough buttons on your average joystick. You usually only have eight directions and a fire button. This becomes a problem when the game offers more than one weapon or spell.

The usual solution is to use the spacebar, an unsatisfactory compromise when there is a horde of angry aliens attacking at warp five. The new Cheetah stick offers two fire buttons and a twist grip in addition to the standard four direction switches. This extra information is sent to the computer through a plug to the second joystick port.

The CPC is unusual in having both ports built into one socket, so you will need a joystick splitter to combine the cables.

Several software houses have expressed an interest in the joystick, Ocean plans to have a game ready for Christmas and Rainbird will configure Carrier Command to make the most of the 125 Special. Look out for some 125 Special *ACU* pokes in future issues.

Carrier Command set for take off

RAINBIRD showed the most spectacular program of the PCW Show. Carrier Command has been written by Realtime Software, originally for the Atari ST but it will soon be converted. Past experience has shown Realtime to be the best people around at converting this kind of program and so we can expect something really special.

Carrier Command casts you as the commander of an invasion fleet. You start with one island under your auspices. A computer controlled foe is in a similar situation. Each of you has an aircraft carrier complete with tanks and planes.

Your aim is to populate all the islands on the map or sink the enemy carrier. Carrier command combines strategy with high speed graphics. The end result should be as playable as Elite.

Sounds interesting

A CLEVER new device which allows computer game players to run their favourite programs without disturbing the rest of the household has just been released with full stereo sound for the CPC.

Chasing those high scores without fear of complaint has been made possible through SoundMaster, which costs £14.99 from Database Electronics (061-480 0171).

The package includes a special interface encased in tough plastic with a graded volume control. It connects easily to the sound output socket and is supplied with all necessary leads.

The beautifully constructed Ross stereo headphones are fully guaranteed. They come with a special adapter which allows them to deliver crystal clear reproduction with personal stereo or hifi systems too.

Every SoundMaster is supplied in a colourful presentation pack with detailed instructions.

PCW Show round up

THIS year's PCW show lacked surprises. Amstrad did not launch the much rumoured lap-top PC or own brand modem. Atari has scrapped some models shown last year, announced others and showed a prototype compact disc player to a select few – something they showed publicly two years ago.

The number of Amstrad machines on other stands was surprising. Acorn showed a PC1512 networked to an Archimedes and Cambridge Computers (the Z88 people) was demonstrating software for the PC and PCW. Sir Clive is reported to have wandered over to the Amstrad stand, looked at a Spectrum +3, lifted an eyebrow and then strolled back across the aisle.

Domark had two major new products. Not a Penny More, Not a Penny Less is an adventure based on the Jeffrey Archer book of the same name. It has been adapted by Robin Waterfield with the programming by Imagitec.

You play one of four defrauded speculators who together seek to recover $1,000,000 from the man who has robbed them. You need to keep a log of your different activities and examine numerous pictures. The game includes allophone speech.

The second major title from Domark is Star Wars. There were three arcade machines based on the film trilogy. Star Wars is a classic and can still be found in arcades and motorway service stations throughout the country.

It uses fast vector graphics for three scenes. You start with a dogfight as you fly a rebel fighter against the forces of Darth Vader. His ship is in the fray but indestructible.

As he retreats into the Death Star you follow, shooting at towers and dodging shots from Imperial gun emplacements.

Finally you fly down a trench, weaving between walkways and finally delivering a fatal blow to the exhaust port.

The second game, Return of the Jedi, was an arcade flop, a sprite-based exercise not unlike the pipeline scene from



Pink Panther people – Willi Carmincke (left) general manager of Ariolasoft UK and Thomas Meiertoberens of programming house Magicbytes

Domark's recent Bond release, The Living Daylights.

Game three, The Empire Strikes Back, was a conversion for the Star Wars cabinet. Being much more difficult to play, it should lend itself well to home computer conversion. The programming is being done by Vektor Graphixs.

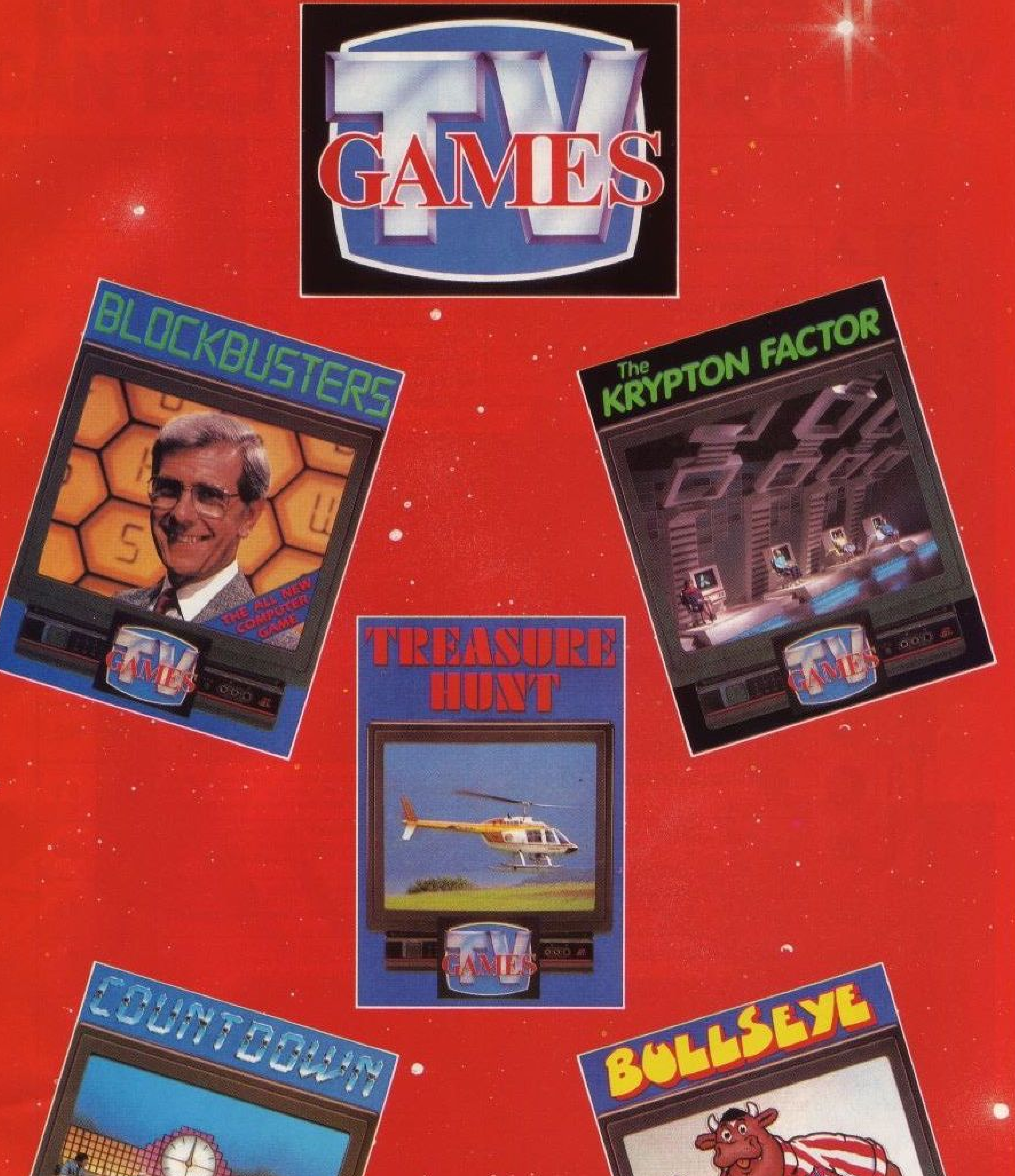
CRL showed a number of new games. Plasmatron is a scrolly shoot-em-up programmed by Simon & David Vout of Software Invasion who have an excellent reputation and earned their Amstrad wings with Street Machine. For those with strong stomachs Jack the Ripper is an adventure by St Brides with gruesome digitised pictures. It is historically accurate and reflects the events of 1888.

Ariolasoft hid on The Edge's stand with some pretty exiting games. The company has signed a licensing deal for The Pink Panther which will be programmed by Micropartner, along with the computer game of Tom and Jerry.

A non-licensed title is Western Games, which includes arm wrestling, shoot the beer, tobacco spitting, the can can, and eating beans. Clever and Smart are the two detectives who star in an Ariolasoft game which has the characters freeing the captured Dr Bakterius.

Silicon Systems to launch hard disc for CPC

IT has been a long time coming, but it looks as though the CPC will finally have a hard disc and interface. Silicon Systems intends to launch a 20 megabyte drive for around £399 based on the latest design of slimline 3.5in hard drives. The software has been especially commissioned from Mark Edwards, of RoDos fame, to ensure compatibility with Amsdos and CP/M plus. Tim Kay of Silicon Systems hopes that CP/M 2.2 will also be available. For more details you can call him on 061-848 8959.



22 HARTFIELD ROAD, LONDON SW19 3TA. 01-947 5622

GALLUP SOFTWARE CHART

Position	Movement	Title / Publisher / Price	Comment	Last month	Market strength
1	Up	**Cricket International** *Addictive* 1.99	Bad timing bringing this out just as the cricket season is bowled out. A good game, something to remind you of leather against willow until next summer (what's summer? – Ed).	3	100
2	Non-mover	**Grand Prix Simulator** *Code Masters* 1.99	The racing game for those who know their opposite lock from a four wheel slide. Super Sprint by any other name would still play as sweet. This is a bargain.	2	85
3	Down	**Paperboy** *Elite* 8.95	This game was late out on the Amstrad due to strict quality control. Written by an ex-Vortex man, it is the best conversion of the arcade game, even if it has no sound.	1	80
4	Up	**BMX Simulator** *Code Masters* 1.99	Cycling simulator best played with a friend. A good, fun game with a low price. BMX may be on the decline, but the memory kind of lingers.	5	79
5	Down	**Milk Race** *Mastertronic* 2.99	Good to see Mastertronic sponsoring sport. I would prefer to see more effort directed at the motor racing car sponsored by Mastertronic.	4	67
6	Up	**Ghost Hunters** *Code Masters* 1.99	A spooky game by the same programmers as Grand Prix Simulator. It will be interesting to see what happens with the full price games from Code Masters.	7	60
7	Down	**Destructo** *Bulldog* 1.99	Falling almost as quickly as it rose, Destructo is overrated. Proof that a well distributed budget game will sell. A full price game has to be really good to chart.	6	57
8	New entry	**Super Robin Hood** *Codemasters* 1.99	A nifty yet thrifty ladders and platforms game. Very addictive with good sound. The game has been around for a little while, but don't expect it to vanish from the chart too soon.	NE	54
9	New entry	**Dizzy** *Codemasters* 1.99	Flickery multi-room jaunt from the twins who wrote Grand Prix Simulator. Not up to previous No. 1 standard, suffers from flickery sprites. Good fun all the same.	NE	52
10	New entry	**World Class Leaderboard** *US Gold* 9.95	Mmmaxx Headroom is obviously not the only computer golf fanatic, as yet another version of the evergreen game tees into the charts. New courses.	NE	51
11	Up	**Park Patrol** *Firebird* 1.99	Once a full price Activision title, now more realistically priced. Good fun, non-hostile. Keep the park clean on land and lake. You play parkie in search of coke cans.	17	50
12	New entry	**Transmuter** *Code Masters* 1.99	Very poor sideways scrolling shoot-em-up. Surprising chart entry not up to Code Masters' usual standards. There are plenty of better buys around.	NE	48
13	Down	**Run for Gold** *Alternative* 1.99	Proof positive that the small-time software house can still make a good showing if the price is right. Making a new entry into this chart is some achievement with so many good new titles around.	8	47
14	New entry	**Deathwish III** *Gremlin Graphics* 9.99	Jack the Nipper with teeth. Excellent selection of weapons, large well animated sprites. Ties in well with the film. Getting to grips with the controls is half the battle. Loads of blood.	NE	46
15	Down	**Barbarian** *Palace* 9.99	Showing that sexism is good for sales and a bit of decapitation doesn't hurt the bank balance, Palace has exploited the fighting theme with panache. Well programmed, good graphics, no morals.	9	45
16	New entry	**Exolon** *Hewson* 8.99	Hewson's glorious spritey sideways walker. Finely detailed graphics from the man who wrote Equinox. Smooth animation as you take a space age yomp across luna firma. Fun, fun, fun.	NE	43
17	New entry	**Road Runner** *US Gold* 9.95	Beep! Beep! Outrun the coyote as the unlikely bird, eat the seed and get run over by a truck. Loses a lot in translation from the arcade game, but still a worthwhile buy.	NE	42
18	New entry	**Boy Racer** *Alligata* 1.99	Two-player tarmac torment. Leave rubber, shoot and dodge your way up the scrolling screen. Excellent value for money. Great fun even if the sprites are a little too little.	NE	41
19	New entry	**Joe Blade** *Players* 1.99	Mode 1 wander around the prison game. 2D sprites, includes a frustrating juggle-the-letters puzzle to prime a bomb. Well drawn, but once finished never loaded.	NE	40
20	New entry	**International Karate** *Endurance* 2.95	Yet another kick your opponent's guts out, oriental style. Then serve up as number 44 with barbecue sauce. But when you've a shelf groaning under the weight of fighting games who needs another?	NE	39

Non-mover · Up · Down · New entry

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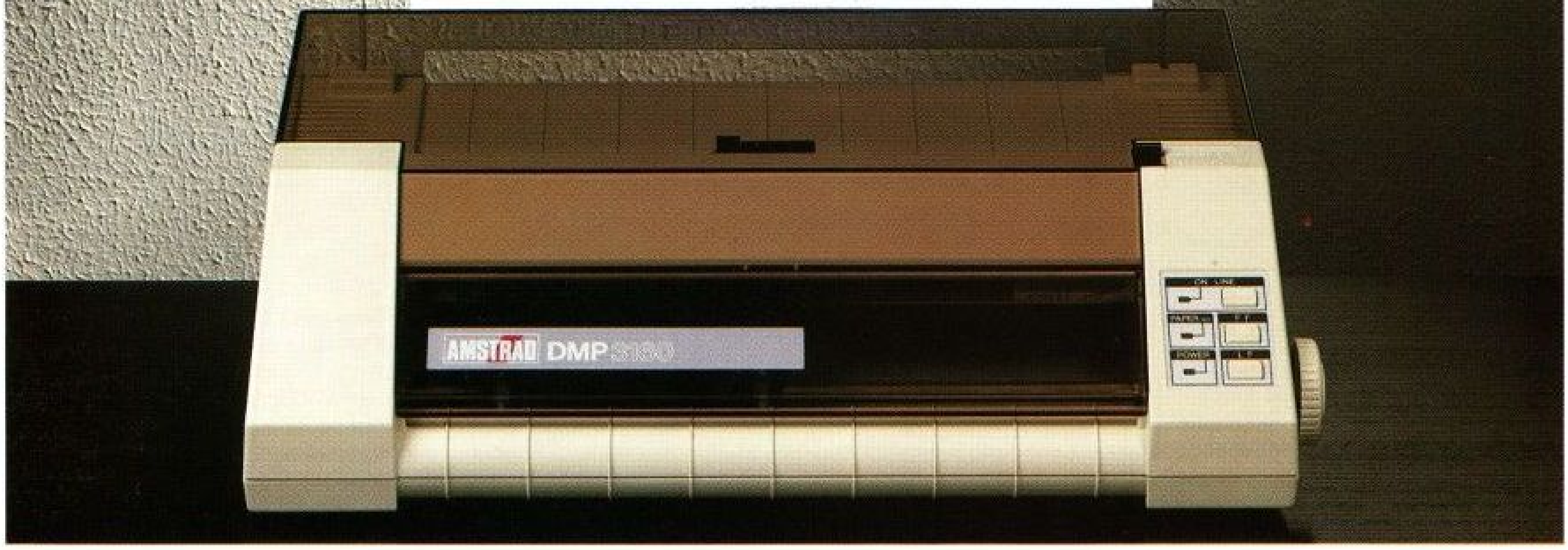


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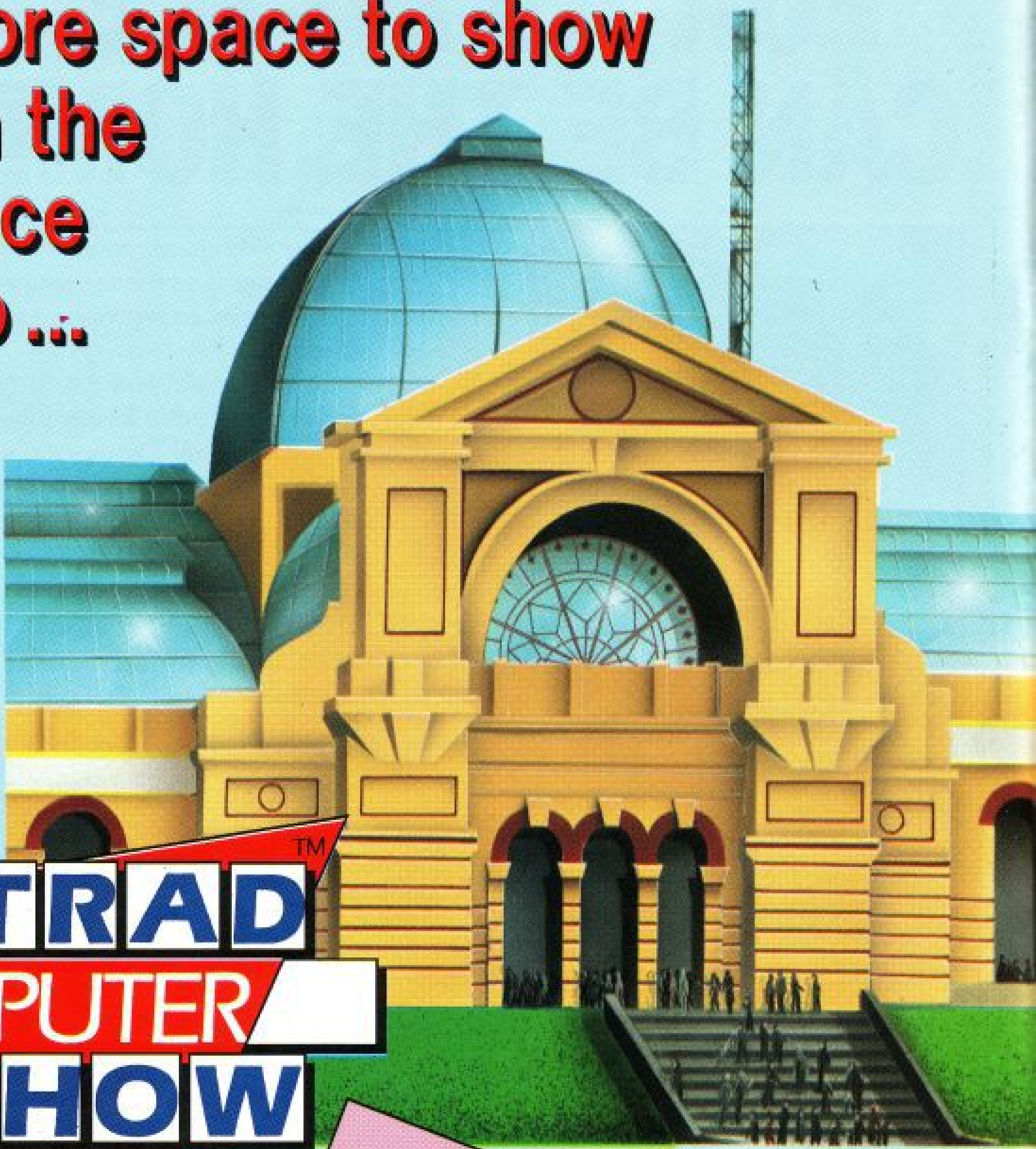
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Hi, I'm Lance Davis, your letters editor. If there is anything you think Amstrad computer users ought to know about then drop me a line. I can't deal with individual problems and this isn't really the place for programming tuition but it is the place for bouquets and brickbats, views and opinions. Write to me at the address in the front of the magazine or on Telecom Gold System 72:mag012. Remember that some writers will be sent free software, so let me know which computer you have.



Read Error B

WE have a second hand CPC464 with colour monitor and are having trouble loading the majority of our games, some of which are quite new. Indeed, many of them were bought via advertisements from your magazine and the two Trivial Pursuits games were bought from you. However, some games will still load.

This would seem to be a fault of the games, which will not load on other machines. Is this a fault of the tapedeck which is damaging the games or have we just got poor quality games?

If it is the computer I would be grateful if you would let me know where I can get it fixed locally? If it is the games, most of which are less than six months old and are worth about £100, can we get them replaced?

Dr R Feinmann, Stockport

LD: *The usual problem is that the tape motor has worn out. A new one can be fitted by your dealer, or if you are feeling brave you can order the spare parts from CPC (0772) 555034.*

Star board

WOULD it be possible to mention in the news letter section of your magazine that Prometheus, Britain's first bulletin board for amateur astronomers and space flight enthusiasts is now online sunup till late starshine daily.

B Spencer

Discs too dear

THIS is the first letter that I have ever written to any magazine so I won't be surprised if it isn't published *(Ah but are you surprised that it has been? – LD).*

I am hoping there are one or two points you could help me with, and the first is most important. One day I was sitting looking at my blank Amstrad monitor wondering what to do next, when in the corner of my eye I saw Arkanoid, which I had recently bought and my heart started beating faster as I put the rewound tape into my Walkman recorder and started my Amstrad into motion.

My heart suddenly slowed down and my smile gave way when the machine reset itself, that is it crashed. So I tried again and again, side 1 and side 2 but to no avail, it just would not load as soon as it reached the blasted turbo loaded (who ever invented such a thing).

So when the anger settled I turned my hand to writing one of my own in Basic, just a simple breakout game, but enough to satisfy my addiction.

Alas this was not fast or good enough, so you will imagine when I looked in your August edition and there in Assembley Point was a breakout game begging to be typed in.

So I pulled out my assembler tape (ZEN), blew the dust off it and started typing, again my heart beating faster.

Once more my heart slowed down when the thing kept crashing every time I tried to CALL it, even after countless checking to see if I had a typing error, which I did not.

An assembly wizard I'm not, but I think there are one or two mistakes in the listing and these should be printed for all to see.

The second point is why don't companies that write games let you send them a blank disc, the game on tape (original) and the price for postage and then they send you your disc with the game on it?

They could even photocopy the instructions and give you them, thus



keeping the original tape and making a bigger profit for themselves.

I don't think I am alone as far as Arkanoid is concerned, and nobody in their right mind is going to pay an extra £5 for the same game on disc.

Alan Maxwell,
Twyford, Berks

***LD:** I don't know of any problems with the Breakout listing. I agree that £5 is a lot to pay to have a game on disc instead of tape, especially now that blank discs only cost £3. Write to the software houses if you want to make your voice heard.*

Who's which?

I MUST have had my head in a bucket if the Gauntlet article in the February '87 issue was anything to go by, or else it's because I am a fairly new reader (the first one I bought was the February issue) because I have these questions: What is a Joyce, an Arnold and an Airo? Better yet, are they the slang names for the Amstrad computers and if so, what are the CPCs 464, 664 & 6128, what are the PCWs 8256 & 8512 and what are the PCs 1512 & 1640?

Alexander Morris,
W. Sussex

***LD:** Sorry, it's easy to forget that not everyone knows this. Arnold is the codename for the CPC. It was chosen partly because it is an anagram of Roland – Roland Perry coordinated the design of the CPC – and partly to give the false impression that Arnold Weinstock of GEC was financing the project and so throw any spies off the Amstrad scent.*

The CPC 664 was called IDIOT, for Includes Disc Instead Of Tape and the 6128 Big IDIOT. The PCW was codenamed Joyce, after Joyce Caley – Alan Sugar's secretary, naturally enough the 8512 became Fat Joyce with the 9512 having the less inspired moniker Joyce 3.

The ARIO was, so rumour has it, codenamed so to form an acronym for Amstrad IBM Rip-Off. The code name for the 1640 was Wispa after the chocolate. Airo, Wispa geddit?



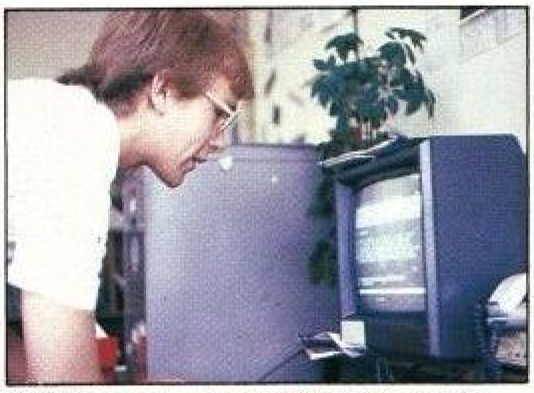
Joyce with her namesake

An old fogie writes

HAVING perused several of the computer magazines currently available at the usual outlets I am pleased to inform you that I have finally settled on the *Amstrad Computer User* and now purchase it on a regular basis.

Hairy Hacker appeals to my sense of humour and his articles are always informative, but does the emphasis always have to be on games programs? The September issue feature section contained some interesting letters and I would like to refer to them:

Mr Cliff Lawson – I do not know the age of Cliff, this is immaterial, but for his information I purchased a Tandy TRS-80 model 1 way back in 1976, the on board ram was upgraded to 48k two months after purchase, the peripherals



Cliff Lawson – how old is this man?

included three disc drives and a line-printer VI.

This equipment has given me sterling service for the past 12 years and has only recently been stored away because it developed a tendency to re-boot at frequent irregular intervals.

I constructed my first programmable equipment using a microchip way back in 1971 and this was the Sinclair Scientific Programmable Calculator. Five years Mr Lawson....really!

The micro computer is here to stay. They continue to replace main frame computers at a rapid rate and the demand for home micros providing word processing facilities maintains a steady rate. They will be around for a long time yet.

Mr J T Thompson – I recall visiting a well known electronics company some time ago where they had business micros installed. Many faults similar to those described by Mr Thompson were experienced there.

Merely touching any part of the equipment would "blow" some chip or other and the power transistors in the line printers would fail with alarming regularity.

After full and lengthy investigation the problem proved to be a build up of static electricity, caused by the ladies operating the equipment walking



PRIORITY ORDER FORM

Please send me the SoundMaster for my:

☐ BBC Model B ☐ BBC Master
☐ Acorn Electron ☐ Amstrad CPC (stereo sound!)
☐ Atari 8 bit (excluding Atari 400)

☐ Cheque enclosed payable to Database Electronics
☐ Please debit my Access/Visa no:

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Expiry date__________

Signed__________

£14.99 (UK) £16.99 (Europe/Eire) £21.99 (Overseas)

Name__________

Address__________

Postcode__________

SEND TO: Database Electronics, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Order Hotline: *061-480 0171*

Orders by Prestel: *Key *89 then 614568383*

MicroLink/Telecom Gold: *72:MAG001*

A178

around without shoes with tights rubbing on nylon carpeting.

The eventual cure was to connect each item of hardware to ground via a 1 megohm resistor, and install anti-static mats. Once again I have to say Mr Thompson's problem may be a different one but my experience may be helpful.

Bill Davies, Plymouth

***LD:** Cliff is not that old, but has seen the way computers have grown since he built his first Atom. I don't actually know how old he is, I'll leave it to you to guess from his photo.*

Business Software

I AM planning to set up a small business (initially on a spare-time basis), and I should be grateful for your advice on suitable software. My computer is a CPC6128.

I shall not mention the actual nature of the business – I don't want anyone to steal my idea – but give an example of a very similar business idea requiring much the same software capabilities.

Let us say that I intend to offer a service to members of the public who wish to track down rare second-hand books. In order to run the business, I would first of all have to collect and store the names and addresses of perhaps 300 or more booksellers.

I would want to be able to record the speciality (if any) of each bookseller – for example, books on art, natural history, gardening, angling or whatever.

I would then want to sort the names and addresses according to these specialities, to enable me to produce a printout of, say, all the booksellers specialising in books on the Lake District.

I would then want to be able to write a standard letter to each bookseller, explaining the nature of my business and asking them to send me regular lists of their stock.

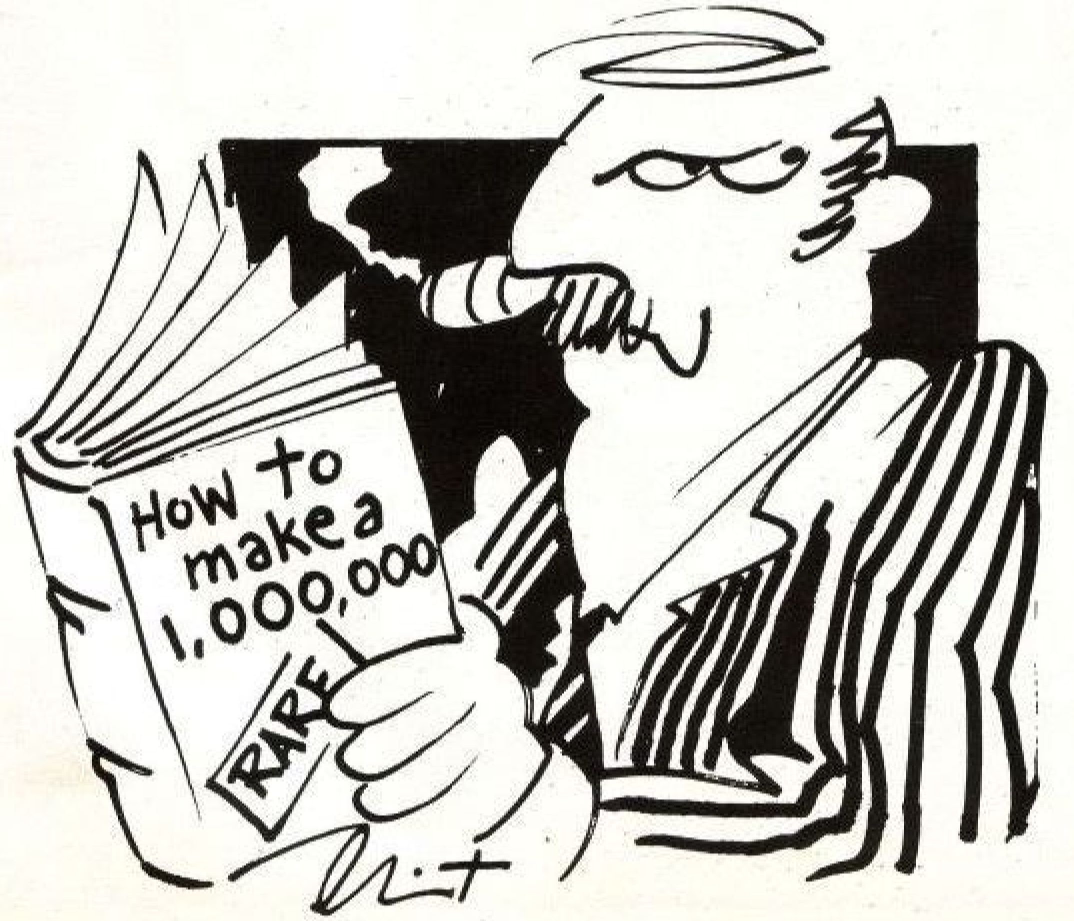
Having gathered this information, I would advertise my service to the public, charging them for locating a bookseller offering a particular book.

I would want to write a reply to any enquirer. This letter would not be completely standard, but would tend to incorporate frequently used sentences or paragraphs. It seems to me that my requirements are for a word processor, a database system and a mail merge program. Am I correct? I already have Protext on rom and a Rombo Rombox.

I have been thinking of buying Masterfile III and a Promerge rom. Would these be sensible choices? I shall be grateful for any comments you have to offer.

Norman Tulloch, Wigtownshire

***LD:** As a fan of Protext and Promerge I'd recommend that combination. Masterfile is more powerful in terms of database storage, but cannot produce the standard letters. You may find a combination of the two to be the best solution.*



Odd results

PLAYING with my 464 and some graphics, I've got some strange results. Type in the first program and run it. After that, insert an else-instruction in line 60 as shown in the second listing. Spot the difference. Could you please tell me what is happening and how it's happening, because I think this bug (?) could have useful effects.

```
10 mode 2
20 origin 320,200
30 for f=1 to 360
40 deg
50 plot 200*cos(f),20*sin(f)
60 draw 100*sin(f),20*cos(f)
70 drawr -100*cos(f),-100*sin(f)
80 next
```

Program I:

```
10 mode2
20 origin 320,200
30 for f=1 to 360
40 deg
50 plot 200*cos(f),20*sin(f)
60 else draw 100*sin(f),20*cos(f)
70 drawr -100*cos(f),-100*sin(f)
80 next
```

Program II:

If needed in the explanation, I have a DDI-1 and a Dk'tronics 64k ram attached (programs were running without bank switching software loaded).

Decanniere Klaas, Belgium

Snowed under

MY letter, Family fortunes, in the September issue of *ACU* has prompted over 60 replies to date, and at one stage left me overwhelmed, but now the backlog is clear.

Thank you for printing this letter, as it has helped so many other people. Could you please tell me and other people who make specialist programs who we can approach with the view to marketing them if acceptable?

I have a customised driving school program running with great success for one of my friends on the Amstrad CPC464. I received a few programs that could be sold if only to a limited market.

If the big boys in marketing could not help then could *ACU* run a small ads column for such programs? People who wanted programs could also advertise. This would certainly bring Amstrad

computer users together via *ACU*.

Bryan Hobson,
Morecambe, Lancs

LD: *Unfortunately there are not very many people writing your kind of software, and very often potential customers would not be reading ACU. You'd be better off advertising a driving school program in whatever magazine driving instructors read. If there is suffcient demand then sales of the program should pay for the cost of advertising.*

You had 60 replies to the letter. If each person had paid £1.25 towards the cost of the advertising it would have paid for a proper 1/8 of a page advertisment.



Footee

AS an avid subscribor to yor magazzine, I wuz pleesed too note that u r now using ower latest modal Z400DMP200 printing musheen, as ampplee shown inn yor September isshew.

I reffer to the FROOTEE listing shewn on Page 53 to 55. The presents off 3 lign 750, and 3 lign 9038 toogeffer with ligns 040 and 780 appeering at thee end off thee proographm showd the fool range of facillatees aveilabull on thiss masheen.

Wee wood howeffer have prefferred yew hackknolledged thee yuse off hour masheen sumwear inn yor publickashun. Keep up thee good wurk, wot about a fore sail column four reeders too sail spare compuootor goodees?

B J W Langley
The Dissleckside Tiperitter Co Ltd,
Thirsk, N Yorks.

LD: *pHank U four yur letor (Stop it – Ed) There were problems with Frootee, send us an SAE for a corrected listing.*

Best assembler

FOR the past five years I've been interested in computers. Two years ago we bought our first computer, a CPC 464. I've mucked around with Basic and know everything there is to know about it, but just recently I've got interested in assemblers.

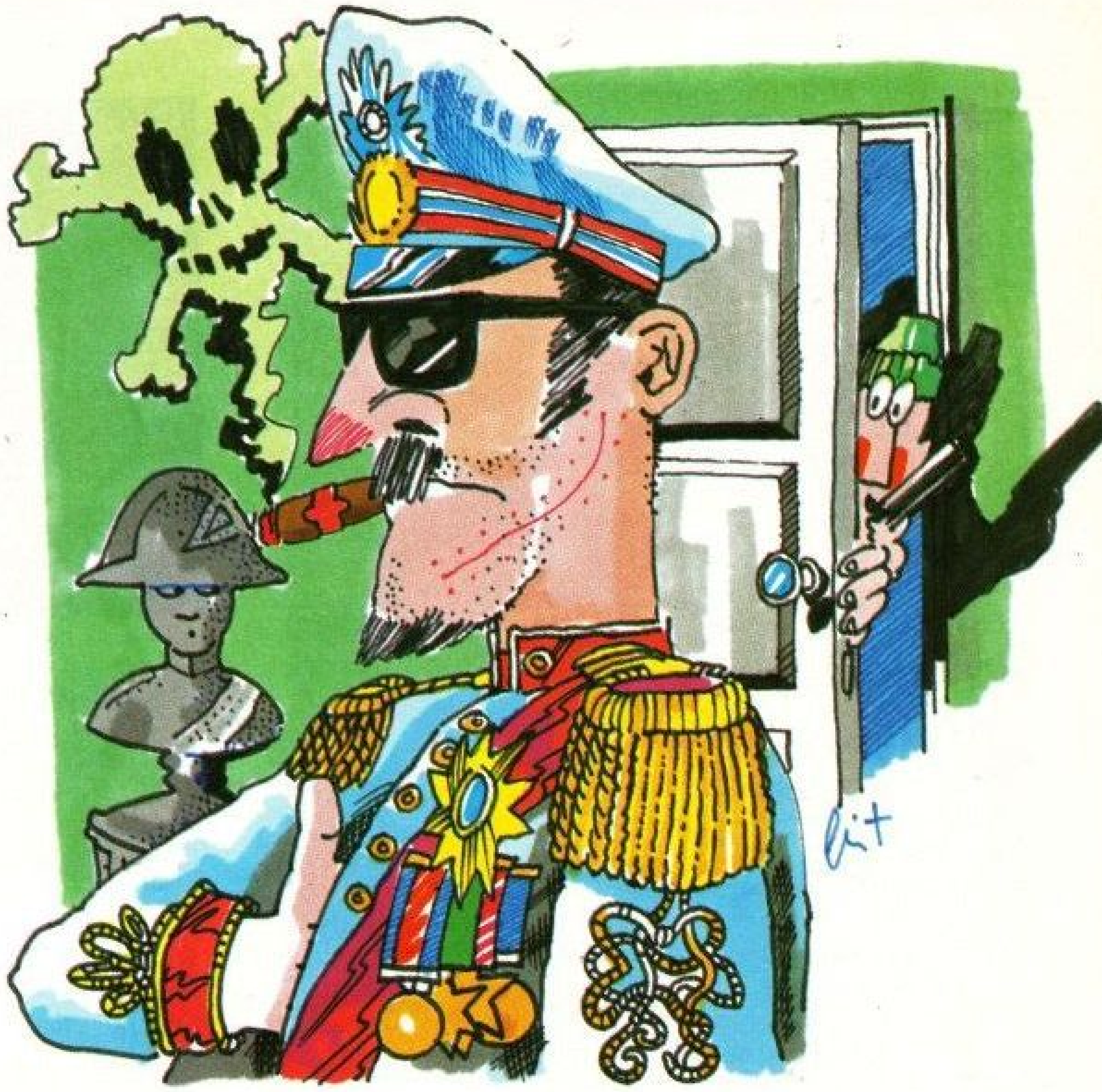
Could you tell me the best Z80 assembler to get and the price in dollars (Australian). Why is it that this magazine costs £1 in the UK but in Australia it's nearly five bucks. Is there a way to avoid this, and can I get it over here faster? I've just bought the May 1987 issue.

Colin Coe,
Australia

LD: *Maxam: Move!*



Seek and ye shall find...



Into adventures with Bill Brock

THE summer of '87 turned out to be somewhat unpredictable. Not only was the weather proving again that balmy summer days are a thing of our parents' imagination; but the Amstrad CPC also had some adventures released by either new software houses or software houses that had not previously produced for the Amstrad. In the past the usual time for these happenings has been at the PCW Show or on the run up to Christmas. The last few issues have seen some of these under our scrutiny and this month we have another – Rick Hanson from Robico Software.

Robico is based in Wales and has been producing very acceptable BBC and Electron software for some time. Rick Hanson is its first adventure for the Amstrad and is apparently an upgraded version of the BBC program that was released in 1985. It comes complete with a small but neat Adventurer's Note Book – 32 blank pages – for you to enter all those vital clues. The instructions are short but clear and include an extensive hint section. The game has over 200 locations and is text only.

Although there is plenty of text to read, some of it is repetitive, with several locations using sections of the same basic text. I can only think that this has been done to try and confuse the player's sense of direction. If you draw your maps carefully as you proceed (of course you do!), the repetition just becomes boring and tends to destroy the atmosphere of what is otherwise a quite reasonable adventure.

Each location description, together with any objects found, is displayed as one continuous block of text, without paragraph breaks, scrolling up the screen rather than clearing before new text is displayed. These single blocks of text demonstrate good programming technique and an excellent word wrapping routine, but sadly it also adds to the overall bland presentation.

You play the part of special agent Rick Hanson. An eccentric dictator, General Garantz, is threatening to destroy the world and your mission is to eliminate him as quickly as possible. You have been parachuted to within striking distance of the General's headquarters and must make your own way on from there.

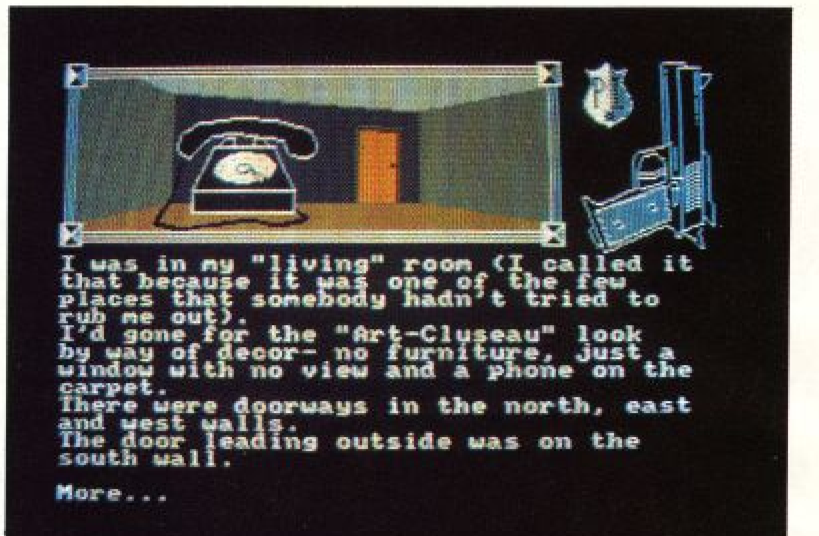
You start off in an old disused railway station where you will also find your final instructions – not that they will help all that much. The programmer obviously had a liking for Mission Impossible and just had to elaborate slightly on its opening sequence! Death stalks your every step in these first few locations and your first major task is to get away from the station in one piece.

There are a reasonable number of objects to find and nearly all those I have found so far are of use somewhere. The puzzles are nicely devious and fairly logical. You will certainly feel pleased with yourself when you have solved them. There are also some that need a pencil and paper to help solve simple codes, so be prepared to exercise that grey matter.

The parser is capable of understanding short sentences although generally only a verb/noun input is

required. Multiple commands are accepted, each separated by AND, THEN, a comma or a full stop. It's nice to see that the use of ALL and EVERYTHING, together with BUT, EXCEPT and APART. TAB repeats your last command and IT may be used to refer to the last noun used. Robico has its own version of OOPS – OG (GO backwards), enabling you to retract your last command. There is also that very useful command RAMSAVE although in this program it is called BUFFSAVE or BSAVE.

The plot is sound but not innovative and the presentation of this adventure is uninspired. Rick Hanson is not a cheap game and I think Robico may regret simply increasing the size of the adventure to utilise the extra memory available rather than sharpening up the overall presentation. What may be acceptable on the memory deficient BBC and Electron is below par for the course on the Amstrad.



A solution for PI

"Some guys are good, some guys are bad. But Sam Spillade was just plain dumb". So starts the latest spoof from the pen (computer?) of Fergus McNeill, via Delta 4 and Piranha Software. Having struggled with hobbits, Sherwood Forest and strange worlds across the rim of the galaxy, Fergus has returned to Earth. It is circa 1937 and the set-up (that's just about the right phrase too!) is a one man investigation agency in the heart of New York.

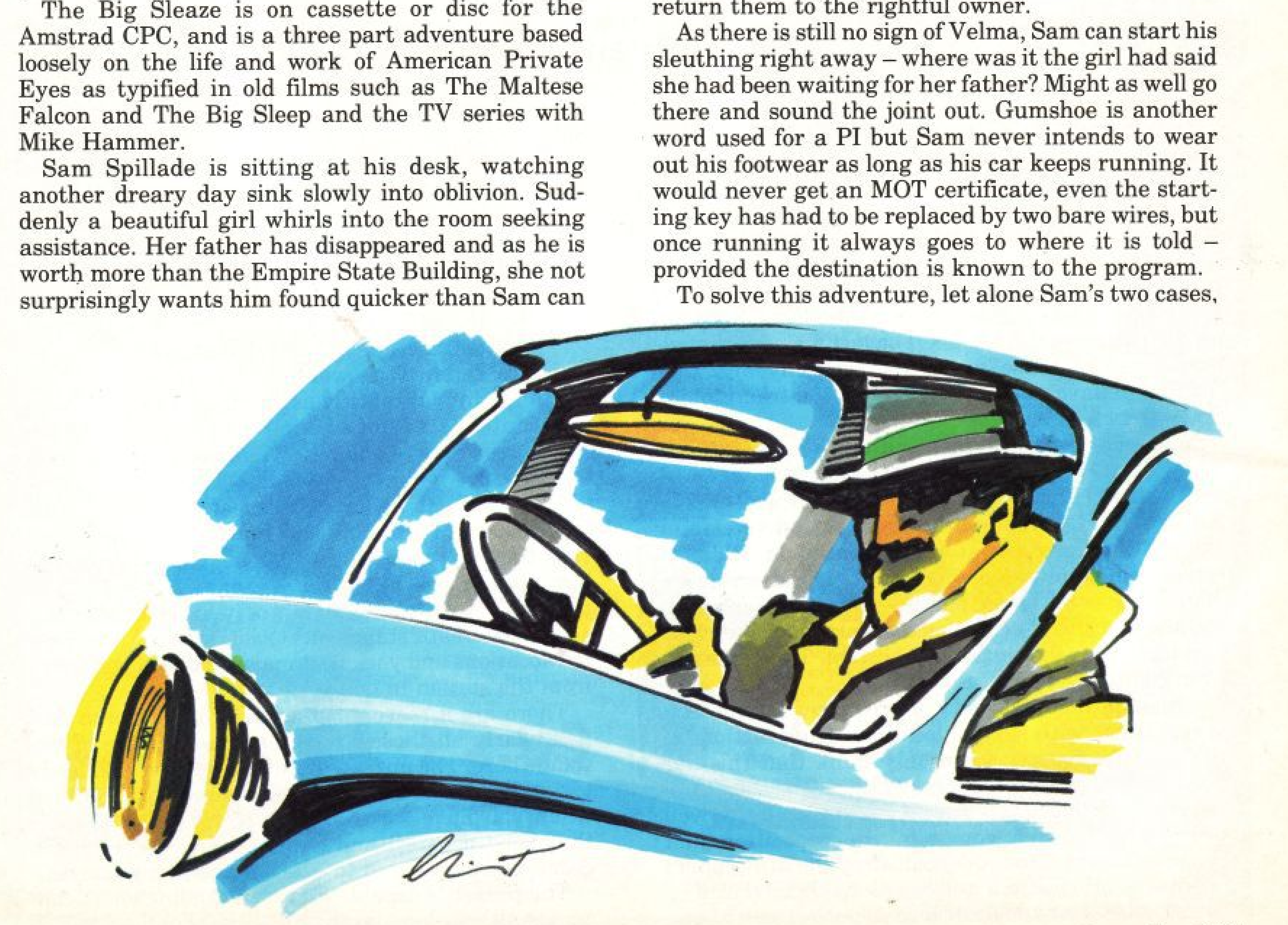
The Big Sleaze is on cassette or disc for the Amstrad CPC, and is a three part adventure based loosely on the life and work of American Private Eyes as typified in old films such as The Maltese Falcon and The Big Sleep and the TV series with Mike Hammer.

Sam Spillade is sitting at his desk, watching another dreary day sink slowly into oblivion. Suddenly a beautiful girl whirls into the room seeking assistance. Her father has disappeared and as he is worth more than the Empire State Building, she not surprisingly wants him found quicker than Sam can draw his trusty equaliser. More to the point she has a cheque for $100 made out in Sam's name to seal the deal. How can he refuse such a beautifully made offer? He starts to think of the way he will solve the case and also how he can get to his bank with the cheque before they file notice of his bankruptcy.

She leaves, and Sam wanders into the outer office to see if his girl-friday, Velma, has returned from wherever it was he sent her. No girl, but a well trained pooch wagging its tail and bringing Sam yet another case – and the cheque that cheers! This time he has to find pieces of a missing photograph and return them to the rightful owner.

As there is still no sign of Velma, Sam can start his sleuthing right away – where was it the girl had said she had been waiting for her father? Might as well go there and sound the joint out. Gumshoe is another word used for a PI but Sam never intends to wear out his footwear as long as his car keeps running. It would never get an MOT certificate, even the starting key has had to be replaced by two bare wires, but once running it always goes to where it is told – provided the destination is known to the program.

To solve this adventure, let alone Sam's two cases,



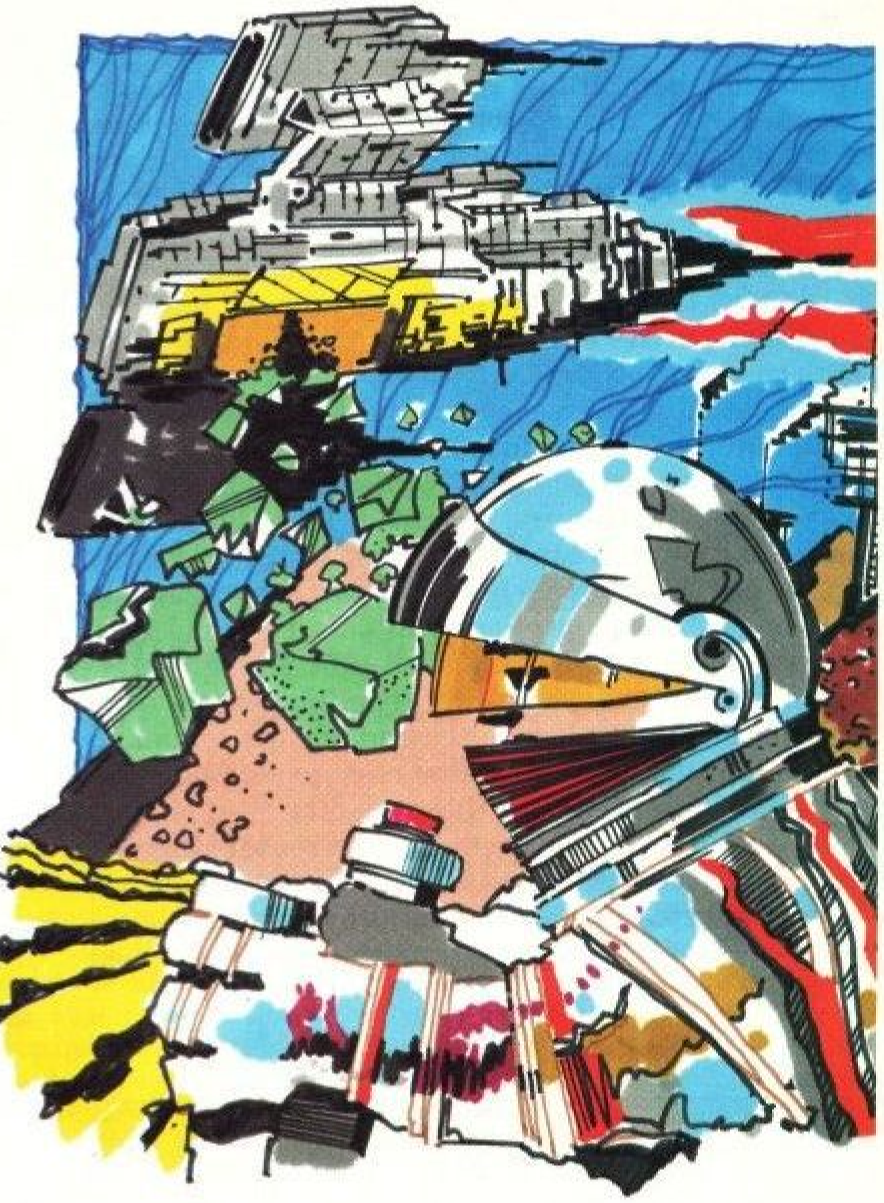
you must listen carefully to all that you are told. This will give you a clue to the next location you must visit on your investigations. Once there keep your eyes peeled and examine everything. There are quite a few objects to be found and most of them will help you to do something – even if it is only a way to get inside your own safe. You may go from one part to another and back again, but to avoid long loading times when using the cassette version, be sure to explore every clue first.

The parser is not that sophisticated and although it will accept short sentences it will only deal with one command at a time. This can be frustrating when you wish to repeat your steps, realizing that what you need has been left in the office. RAMSAVE is always a welcome command and I got into the habit of SAVEing each time I entered Sam's car. Note that if you store what you find in the car, it might save an unnecessary trip to another part of the program. Sam's car may have no locks but it does seem to be burglar proof.

There are not that many locations at each destination, but map them anyway – it will speed things up the next time you visit. The game really revolves around knowing where to go, in which order, and how to solve the puzzles along the way. The text is some of Fergus' best, and there is plenty of it. Humour abounds and EXAMINEing things is not only vital to the game, it also provides plenty of laughs.

There are a number of graphics, but not at every location. What there is, is well drawn and adds to the atmosphere provided by the text. The only criticism one can ever have with adventures from this source, is that sometimes the clues are a little too well hidden – all I will say, is that you should examine the SLLAWOOL and if you seek a lady with a torch, drive to KRAPYRETTAB. As there is spare space on the tape, and as Delta 4 has always believed in value for money, you may also have the pleasure of reading its latest electronic magazine – Sceptical 3. This is full of amusing rubbish and is worth loading – after all, you got it for free.

The Big Sleaze is a worthy successor to all previous Delta 4 adventures. It reeks of an atmosphere that would make Micky Spillane turn in his grave...and smile.



Marooned in space

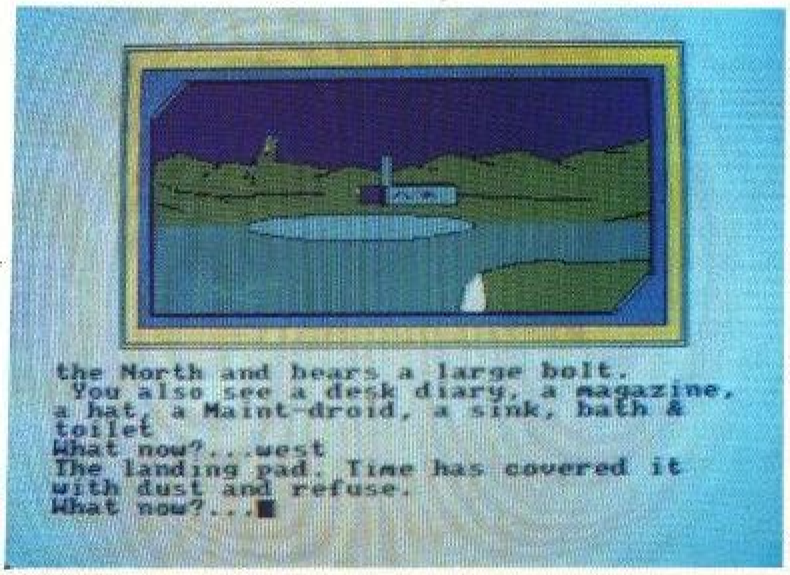
Last month I looked at two cheapies from Alternative Software, Wizbiz and Star Wreck. The latest from Alternative is another from the same author, Life-Term. This has a more serious plot than the last two and is a devious game that will tax your patience and powers of detection.

The action takes place over 1,000 years in the future. Governments as we know them have broken down and their rule has been replaced by that of a number of enormously rich planetary trading companies. Life is good for the rich, for the others it is a living hell. Corruption is commonplace and what Justice there is, is meted out by the Trade Police.

You play the part of Jake Stalin, convicted of a serious crime even though he was millions of miles away from the scene at the time. As the death penalty no longer exists, he is put in charge of a refuse processing planetoid called Souzel. It is a life sentence to which there is no appeal. Can you find a way to give Jake his freedom?

Life-Term is written using Incentive's Graphic Adventure Creator and the text and graphics are well thought out. The only deviation from the normal GAC commands seems to be the inability to SAVE one's game position. As LOAD and RESTORE are recognized, this may be a bug in my review copy – check yours as this could be a very irritating omission.

The game is not easy to unravel and its directional



sense is strange to say the least. I cannot say I approve of direction anomalies, unless there is a reason for them. If I go south, I expect to be able to go north to return to where I started. Sometimes there may be one-way routes and occasionally if you follow a twisty road one may expect some peculiarities. I am also quite happy to accept strange directions in the case of a maze. The action in Life-Term may take place on an alien planetoid, but I am sure that gravity effects would not account for what happens here.

The intent of course is to confuse the player, but I would prefer to be confused by good puzzles than by rather odd maps. Possible directions are not displayed and in the first batch of 13 easily visited locations, one spot can only be reached by travelling northeast (NW, NE, SW, SE are unacceptable elsewhere). Three locations can only be found by a rather unexpected UP. This is a fair enough stratagem but just a little sneaky! The inlay offers little help other than to list a selection of nine command words that may not be all that obvious. A longer list is available from Alternative Software.

It is quite easy to make an adventure almost impossible to solve, by totally confusing the player, having unexplained commands or by having illogical puzzles. In a good game, information is supplied (however meagre), to enable a logical solution of clues that lead to other clues and puzzles. I suspect Life-Term is on the edge of being devious for devious sake rather than to create a mind-teasing game.

Not everyone can solve every adventure, we all have our preferences for certain types of game and the way we think they should be played. It may be that Charles Sharpe just writes games that do not suit me – who knows, many of you may find Life-Term an acceptable and satisfying challenge. As it is so cheap (£1.99), why don't you get it and let me know?

RATINGS

	Rick Hanson	Big Sleaze	Life-Term
Plot	55	74	63
Atmosphere	50	78	65
Addiction	55	70	61
Difficulty	68	64	72
Overall	53	74	63

ACU

Applications advice

This month David Foster, agony Uncle and general Amstrad know-all, offers more on the Masterfile Database and a little bit about the advantages, or otherwise, of rom-based software.

ONE area which does seem to cause some confusion in Masterfile is the use of Parent and Child related records. Masterfile is not a truly "Relational" database, in so far as it is not possible to read information from, or write information to, more than one file at the same time. But it is quite unusual in that it does provide the facility to relate details of one record to those of another.

The effect of this may not be immediately obvious, but it can mean a considerable reduction in the amount of data which is actually stored in the database, not to mention the amount of typing required when entering information. Databases which will benefit from using this feature are those where groups of the same data will appear in a number of different records.

A very simple example of this might be where you keep a record of members of a national club and you wish each record to show which region they belong to and the address of the office. If you just prepared a normal database, you would have to type in the full regional name and address every time, which would be both time consuming and take up a lot of space.

In use, you create a record format containing only the fields for the common details, plus the parent field. You then enter the records containing only details of the common features, such as the name of the region and the address in the above example, giving each "parent field" a short abbreviation as contents.

You then Unselect the parent records and create a second report format that contains only those fields that are different in each record, plus the "child field". You can then start entering the information and when you get to the child field, you enter the abbreviation that you used for the parent record to which it must be related.

Display option

Once you have done all that, you can create a third report format containing all the fields for which you require information displayed, plus one for the parent field. If you then use the display option with this report format, you will find that when each record is displayed, all the details of both the parent and child are displayed as if they had all been entered in the same record.

Note that because the parent records are unselected, they will not be displayed in the report on their own, though Masterfile will still locate them to obtain the required information.

In this way, you only have to enter the common details one time, yet they are displayed for every record to which they relate. Parents and children aren't the easiest of features to understand, but it is well worth spending a bit of time reading the manual and looking at the example files, as they can save you considerable time and effort in the long run.

Why rom software?

One question which is frequently asked is "Why should I want rom-based software?". In fact you have already got it, whether you want it or not. The Amstrad operating system and Locomotive Basic are all rom-based software and are a part of the standard computer.

If you have a disc drive, then the software to operate that is also on a rom in the computer (or interface, in the case of the CPC464 DDI interface). The advantage of this is that when you switch on the micro, Basic and the disc drive are instantly available for use without having to load any further programs. Another advantage is that very little of the micro's own memory is used, leaving more space available for programs.

The CPC range does not incorporate any facilities to just plug in extra roms. Luckily, provision was made for roms, to the extent that all the required connections are available on the expansion port, which means that it is possible to connect interfaces to this port which contain rom software.

This may be a special interface, such as an RS232 to connect to a modem, or a Light Pen, both of which may contain their own roms, or it may be a special "rom box" containing a number of sockets into which you can plug your own choice of rom software.

The cost of getting your first program on a rom is not inconsiderable – you have to buy not only the software, but the rom box to put it in as well. Having got your rom box, you will still have a numbe of spare sockets, so subsequently you only need to buy the program on rom and just plug it in.

Why would you want to pay extra money to buy a program on rom when you could probably save money and buy the same program on disc or tape?

There are actually a number of reasons. If you are using a 464 with tape software it is a very longwinded process to load a word processor, just to type a short note, so you often don't bother. With a word processor on rom, it is always ready and waiting for you, so by typing a simple command, you can write your letter and print it without any waiting time at all.

Another reason might be that you wanted to have more memory available in the program, so by having the program in rom, that space is available for data. Thirdly a number of Utility programs are available which provide extra commands available from Basic, to carry out such tasks as formatting discs without having to use CP/M, to move lines of Basic programs around, or to provide a screen dump.

Again, these may equally well be programs loaded from tape or disc, but nine times out of 10, when you want them you haven't got them loaded. Roms are one of those things you don't appreciate until you've tried them. I recommend you discover their powers.

Personal Tax Planner

Personal Tax Planner, by Digita International, is a CP/M Plus program for use on either the CPC6128 or the PCW

range of computers. The object of the program is to carry out the computations necessary to calculate your personal tax liability for a given tax year.

The program is supplied in a video case box, complete with a small but properly printed, handbook. The program is supplied on one disc and the same version suits both CPC and PCW, any differences being taken care of by the installation program.

Start of day disc

The handbook contains some eight pages of information. The first couple of pages describe how to install the program, commendably giving details of how to format a disc but unfortunately giving no details of how to create a Start of day disc.

As there is more than enough room on the disc, I am sure most people would appreciate it if they could just put the disc in drive A and have both CP/M and the program automatically load.

The remainder of the manual is devoted to using the program, except for the last page which gives details of Digita's 60 day guarantee and subsequent annual software support scheme that is optionally available at extra cost.

One page is devoted to an overview of how to enter details, in terms of which keys to press once the program is loaded and a further page and a bit covers each of the eight menu options available, devoting about a couple of paragraphs to describing each of them.

Two pages are devoted to guidance notes on the data to be entered, such as the meaning of Tax year and Retirement annuity premiums. I feel that greater explanations of the workings of the Tax system would have been welcomed by most people. If you aren't sure how to work your tax out already, there will certainly be insufficient help in the guidance notes to get you through the questions.

Getting planned

Installation is extremely simple, consisting of nothing more than two questions. First you must decide between PCW or CPC6128, and then optionally you may decide to specify a string of codes to be sent to the printer when printing commences. You may send up to 10 printer control codes.

The program loads with a copyright message briefly displayed, then enters a neat menu containing eight options. At the top of the screen in the left hand corner is a note that it is set up for the Tax year 1986/87.

Option 7 on the menu lets you change this and the allowable dates are from the 1984/85 year up to and including 1987/88, so anyone buying the program now will find that it is nearing the end of the periods covered.

The section at the back of the manual covering the Support Service does say that all subscribers to the scheme are entitled to free upgrades according to latest legislation. Presumably some provision is also made for future years, but where does that leave anyone who doesn't feel inclined to pay a further £12.50 per annum though?

In addition a single sheet is provided, giving further information about how to treat certain items, such as Gross deposit interest and Multiple loans, which have to be handled in a slightly different way than usual.

Entering data

Option 1 allows you to enter new data. This largely consists of answering a number of questions which are offered one at a time. Default values are given where possible and these may be changed by pressing the first letter of the available options.

For example, the question 'Single/Married/Widowed' defaults to Single, but pressing M or W will select married or widowed. Some questions require input about your personal details – items such as name, year of birth (Yes, it does check for validity. It didn't accept I was born in 1990 – nor that I was born prior to 1851).

Many of the questions require Yes/No answers and default to No. Selecting Yes often results in a further set of questions being asked.

Having entered all the details, any incorrect entries can be amended using the Amend option (Number 2). Selecting the third option to Examine data allows you to see what you entered and it can either be listed to screen or printer.

Logically, I would have thought this option ought to be before the Amend option as it is most likely that you would only see what needed amending after using this option.

Next on the agenda is Income tax computation. Again, this is where all the work is done by the program. The results can either be displayed on-screen or sent to a printer. The layout is neat and well arranged and in addition to the basic figures, further information may be given, such as whether it would be advantageous to elect for separate taxation for your wife's earnings, or details of the amount of any retirement relief available. The manual also suggests that the program can be used to produce "What if" figures, by using the amend option, to see the effects of changes in allowances and so on.

The exit option returns you to CP/M, but asks you to confirm with Y or N before doing so. I would have preferred that the program checked to see whether any changes had been made to data since it was last saved (or if it hadn't been saved at all) and warned you if it hadn't been saved. It is all too easy to get distracted, think you had saved it and confirm that you want to exit, at which point, all information will be lost.

The final two options allow you to save data for later use and to load it back in again. Program checking is quite thorough and it will catalogue the available data files. One odd quirk is that if there aren't any, it will tell you and then proceed to ask you to enter the name of the one you want to load.

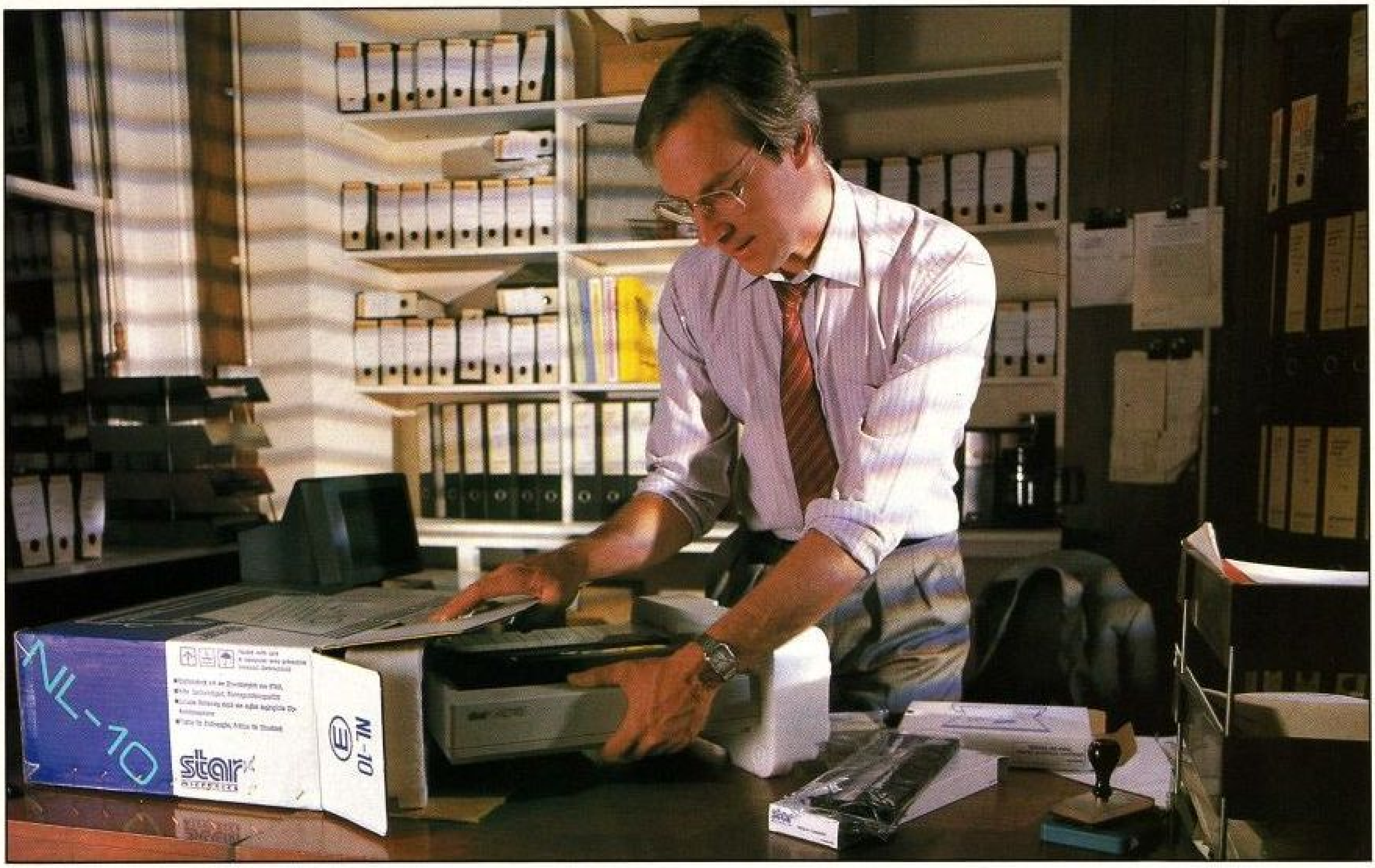
Pressing Return will escape back to the main menu. The save option checks to see whether there is any data to be saved, but this time, if there isn't any, it gets it right and doesn't ask you what name you want to save it with.

Will it save money?

If you feel you need a program to work out your personal tax and are prepared to pay the price, then this program might well serve your purpose. Bear in mind that you also ought to pay the extra annual amount to join the Maintenance Scheme, to ensure that the program is updated to take care of any changes in legislation.

Many people, I suspect, are in a position where there is little they can do to reduce their tax liability anyway, and for anyone with a complex tax situation, I don't think the program would be able to help much. If your affairs are that complicated, you will no doubt already have an accountant to do it for you in any case.

ACU



You've made the right decision

Star makes it easy to choose the right printer when it comes to those difficult decisions. From the small business or enthusiast user through to the highly demanding corporate buyer, there's a printer in our range to suit every need.

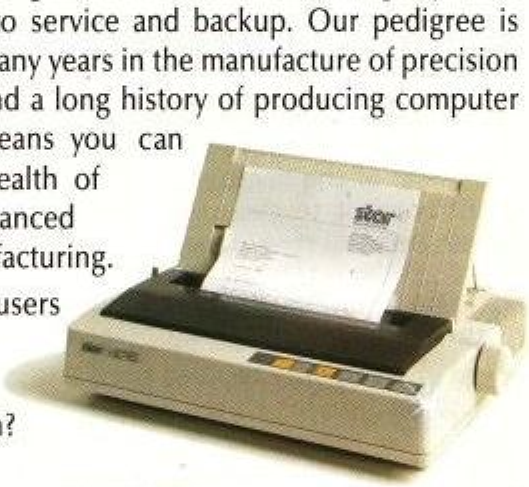
Take the NL-10 for example. You need to choose a printer that's compatible with the computer you're using today and the one you might upgrade to later. With the NL-10's modular interface that's no problem, just select the interface you need when you buy the printer. If you need to change later it only takes a moment to swap the cartridges over.

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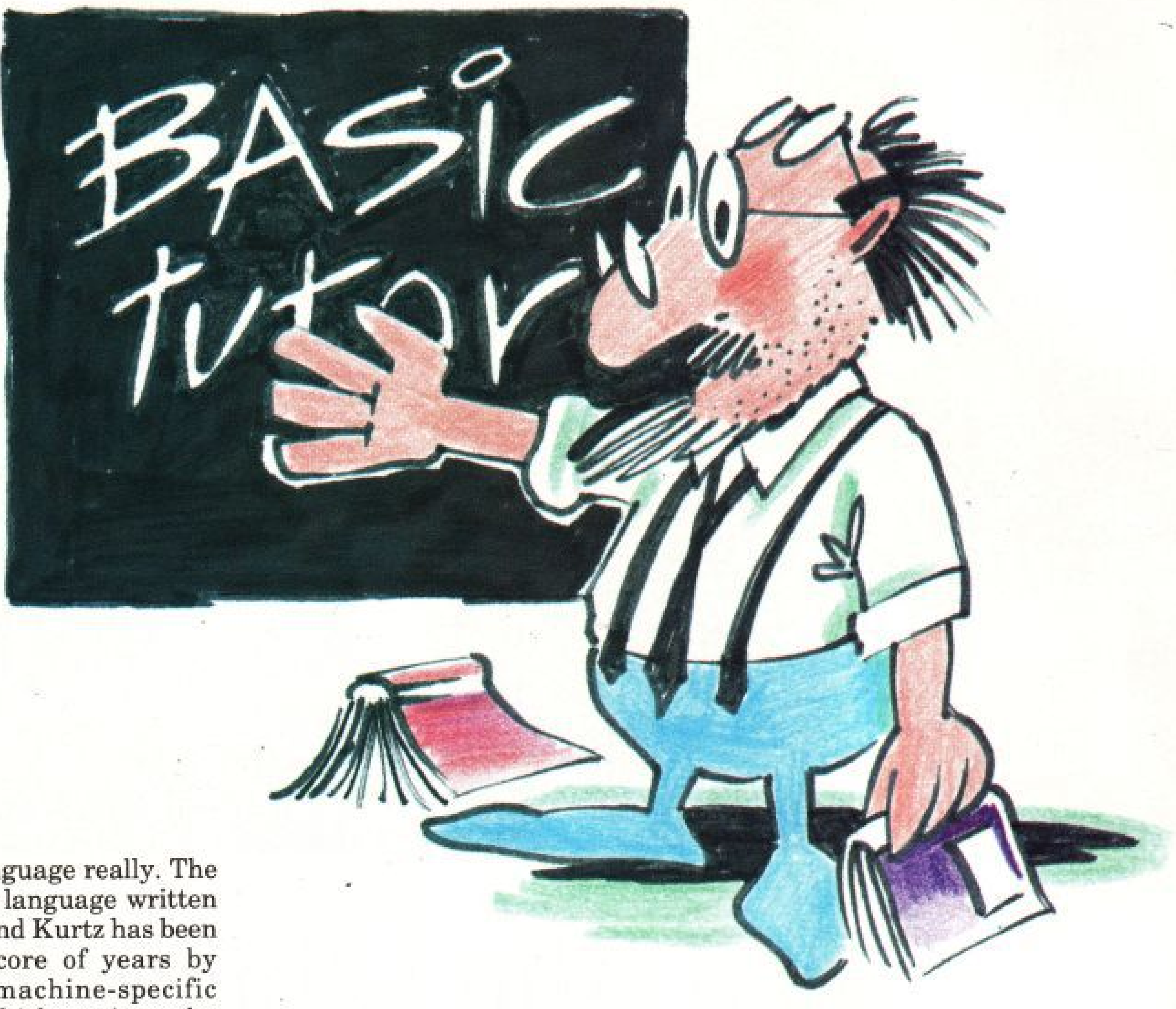
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Locomotive Basic has many unsung keywords, and by not using them you are missing out on some of the most powerful features of your micro. Jeff Walker looks at the menu, through the square window

BASIC is a funny language really. The simple, easy-to-learn language written in 1964 by Kemeny and Kurtz has been succeeded over a score of years by myriad different machine-specific dialects – one of which, written by Locomotive Software, you've got inside your CPC.

The Amstrad dialect has been called over-complicated because of its 150+ keyword vocabulary. But it is this very fact that makes it so versatile, bringing intricate programming techniques within the reach of the beginner.

A difficult concept to get used to, if you've never come across it before, is the "stream". On the CPC we have 10 of these streams, numbered #0 through #9. The last two, #8 and #9, are reserved and can only be used from Basic for sending data to printer, or file, respectively. The remaining streams, #0 through #7, are the "text window" streams.

Text windows are most easily thought of as little screens within the big screen. Once one has been defined, its PAPER and PEN colours can be set independently of the rest of the screen, and characters can be sent down a stream to that particular window.

Windows even have their own personal coordinate systems. The top left hand corner of any window you define will always be 1,1 – but the bottom right hand coordinate will depend entirely on the size of the window.

Perhaps the easiest thing you can do to a window is scroll it. By LOCATEing the cursor at 1,1 in your window and PRINTing the control code that moves the cursor up one line – CHR$(11) – the whole window will scroll down one.

Similarly, by LOCATEing the cursor at the bottom left hand corner of your window and PRINTing the control code that moves the cursor down one line – CHR$(10) – the whole window will scroll up one. Both these scrolls will occur only in the window in which the control codes were printed, leaving the rest of the screen intact.

Stripey scrolls

Program I is a spectacular example of this technique. It shows how large areas of the screen can be made to appear smoothly animated in Basic using windows and scrolling. The POKE, by the way, has nothing to do with the animation: It simply POKEs random numbers, most of them illegal, to the system variables area, in order to get the stripey effect – which has the added bonus of making it appear that there are more than the four allowed colours on the MODE 1 screen. Hmmm.

Program II turns this window-scrolling technique to some practical use. It defines a long, narrow WINDOW#1 down the left hand side of the screen and PRINTs a bat (of the species Horizontalli Breakoutimus) in it. This bat is under your control via the A and Z keys. Note the checks in lines 180 and 190 to ensure that the bat cannot be scrolled out of the top or bottom of the window.

The drawback with scrolling is that it restricts you to vertical movement only. But windows can be used to good effect for horizontal movement – panning – as well.

A very small window

Program III first sets up a few random variables, then goes into a loop from start (sta) to finish (fin) which will

```
100 'PROGRAM 1 - Food for thought
110 '
120 DEFINT a-g
130 addr=&B730 '&B290 for 464
140 MODE 1
150 BORDER 0
160 INK 0,0
170 INK 1,2
180 INK 2,6
190 INK 3,25
200 WHILE NOT FEELING.SICK
210 a=RND*33+1
220 b=RND*3+4
230 c=RND*255
240 d=RND*10
250 e=RND*1+10
260 f=25:IF e=11 THEN f=1
270 WINDOW a,a+b,1,25
280 POKE addr,c
290 LOCATE 1,f
300 FOR a=0 TO d
310 PRINT CHR$(e);:NEXT
320 WEND
```

Program I

either be a backwards or forwards loop depending on which of the two variables is greater.

In the loop it defines a WINDOW#1 whose dimensions are one character wide by one character high. It then PRINTs a ball in that window with the random pen (note the semicolon to suppress the linefeed), clears the window and goes round the loop again, incrementing or decrementing the column position, so creating the illusion of movement.

Note that when a new WINDOW#1 is defined, the old WINDOW#1 no longer exists. This technique isn't too far removed from the more normal way animation is produced in Basic:

1. Print a character at the position variables
2. Increment the position variables
3. Print a space at the old position variables
4. Goto 1

The advantage of the WINDOW technique is that the CLS#x command can in many cases be quicker and easier to execute than the LOCATE-...PRINT sequence to wipe out the old character, therefore enabling the animation loop to run faster.

And that's what the two CALLs to &BD19 are doing there – to actually slow things down enough so the animation is smoother. They're the equivalent of Basic 1.1's FRAMEs. If Program III was part of a game, the rest of the program would probably slow things down enough to leave one, if not both, of the CALLs out anyway.

But although Program III is just a fancy graphics demo, and probably not of any practical use, the technique used to animate the coloured balls can be easily extended to allow the user full control of a simple sprite.

```
100 'PROGRAM 2 - Scrolling
110 '
120 MODE 1
130 WINDOW#1,1,1,1,25
140 PRINT#1,STRING$(3,138)
150 WHILE NOT GONE.BATTY
160 a=NOT(INKEY(69))
170 z=NOT(INKEY(71))
180 IF a AND x>0 THEN GOSUB 230
190 IF z AND x<22 THEN GOSUB 280
200 WEND
210 '
220 'up
230 LOCATE#1,1,25
240 PRINT#1,CHR$(10)
250 x=x-1:RETURN
260 '
270 'down
280 LOCATE#1,1,1
290 PRINT#1,CHR$(11)
300 x=x+1:RETURN
```

Program II

Man in the middle

Program IV presents you with a little man in the centre of the screen which you can then control via the cursor keys. The animation loop is from line 140 to 230 in which the four arrow keys are constantly checked for their up/down state.

The use of INKEY rather than INKEY$ is, once again, for speed. Both are keywords to invoke similar functions inside your CPC, but INKEY$ returns a string, whereas INKEY returns an integer – and we all know that computers can handle integers faster than they can strings, don't we?

Lines 190 to 220 branch to a different subroutine for each key, provided the movement won't take your man off the screen. If no key is being pressed the WEND sends control back to the WHILE again.

The four subroutines are at lines 250 to 280. In each, the x and y coordinates are incremented or decremented, then the variable char is set to the Ascii character consistent with the way your

```
100 'PROGRAM 3 - Simple animation
110 '
120 DEFINT a-z
130 MODE 1:BORDER 0:INK 0,0
140 WHILE NOT GONE.DOTTY
150 pe=INT(RND*3)+1
160 row=INT(RND*25)+1
170 sta=INT(RND*40)+1
180 fin=INT(RND*40)+1
190 IF fin<sta THEN s=-1 ELSE s=1
200 '
210 FOR col=sta TO fin STEP s
220 WINDOW#1,col,col,row,row
230 PEN#1,pe:PRINT#1,CHR$(231);
240 CALL &BD19:CALL &BD19
250 IF col<>fin THEN CLS#1
260 NEXT
270 '
280 WEND
```

Program III

```
100 'PROGRAM 4 - A simple sprite
110 '
120 MODE 1
130 x=20:y=12:char=249:GOSUB 300
135 '
140 WHILE NOT PRESSING.ESC
150 up=NOT(INKEY(0))
160 do=NOT(INKEY(2))
170 ri=NOT(INKEY(1))
180 le=NOT(INKEY(8))
190 IF up AND y>1 THEN GOSUB 250
200 IF do AND y<25 THEN GOSUB 260
210 IF ri AND x<40 THEN GOSUB 270
220 IF le AND x>1 THEN GOSUB 280
230 WEND
240 '
250 y=y-1:char=248:GOSUB 300:RETURN
260 y=y+1:char=249:GOSUB 300:RETURN
270 x=x+1:char=250:GOSUB 300:RETURN
280 x=x-1:char=251:GOSUB 300:RETURN
290 '
300 CLS#1:WINDOW#1,x,x,y,y:CALL &BD19
310 PRINT#1,CHR$(char);:RETURN
```

Program IV

man is moving, before calling the subroutine at 300 which does the actual screen updating.

At the end of the day, however, you will probably use windows for what they were designed for – creating pleasant and tidy screen displays.

Looking good

Program V supplies you with a subroutine (at 2000) for creating a window on a MODE 1 screen with an automatic border and 3D-type shadow. The variables for each window – stream number, window dimensions, and paper colour – are set up in the subroutine at 1000 and a simple

GOSUB to 2000 does the rest, the position and lengths of the black lines for the border and shadow being worked out from the window dimensions le, ri, top and bot.

For MODE 0 and MODE 2 the calculations in the MOVE and DRAW statements will need to be modified, or an extra variable will have to be created to make the subroutine portable across all MODEs. I'll leave that one to you.

I hope I have shown you that WINDOW is a pretty versatile keyword capable of doing much more than its name suggests. Along with PEN, PAPER, LOCATE and CLS there are a few other Amstrad keywords that can operate on different streams – INPUT, LIST, POS, TAG, VPOS, WINDOW SWAP, WRITE, and under Basic 1.1, COPYCHR$ – all of which have their uses.

The keyword WRITE, for example, has suffered terribly from bad documentation in the Amstrad manuals as well as in just about every book ever written on Amstrad Basic. They all give the impression that WRITE can only be used for sending data to file down stream #9. Not so.

Try this: Type PRINT 1 and the digit 1 will appear on the screen with a leading space. Now type WRITE 1. Dah-dah! No leading space. Now type WRITE 1,2,3,4,5,6,7,8,9. Interesting, huh?

Mess around a bit, try it with variables, try it with quotes around each of the numbers. Don't you just *HAVE* to go away and write a program that uses WRITE now? I do. Tarra.

```
100 'PROGRAM 5 - Windows
110 '
120 MODE 1:BORDER 16
130 INK 0,9:INK 1,0
140 INK 2,6:INK 3,26
150 PAPER 3:PEN 2
160 FOR a%=0 TO 24
170 PRINT STRING$(40,207);
180 NEXT:PAPER 0:PEN 1
190 DRAW 639,0:DRAW 639,399
200 DRAW 0,399:DRAW 0,0
210 '
220 GOSUB 1000
230 GOTO 230
240 '
250 END
998 '
999 'screen set up
1000 s=1:le= 2:ri=22:top= 2:bot=20
1010 pa=0:GOSUB 2000
1020 s=2:le=24:ri=39:top= 2:bot= 4
1030 pa=3:GOSUB 2000
1040 s=3:le=24:ri=39:top= 6:bot=20
1050 pa=2:GOSUB 2000
1060 s=4:le= 2:ri=22:top=22:bot=24
1070 pa=3:GOSUB 2000
1080 s=5:le=32:ri=39:top=22:bot=24
1090 pa=3:GOSUB 2000
1100 s=6:le=24:ri=30:top=22:bot=24
1110 pa=3:GOSUB 2000
1120 RETURN
1998 '
1999 'create a window with shadows
2000 WINDOW#s,le,ri,top,bot:PAPER#s,p
     a
2010 MOVE((le-1)*16)-2,((25-bot)*16)-
     2
2020 DRAW ri*16,((25-bot)*16)-2
2030 DRAW ri*16,(26-top)*16
2040 DRAW((le-1)*16)-2,(26-top)*16
2050 DRAW((le-1)*16)-2,((25-bot)*16)-
     2
2060 MOVE(ri*16)+2,((25-bot)*16)+2
2070 DRAW(ri*16)+2,((26-top)*16)+2
2080 DRAW((le-1)*16)+2,((26-top)*16)+
     2
2090 CLS#s:RETURN
```

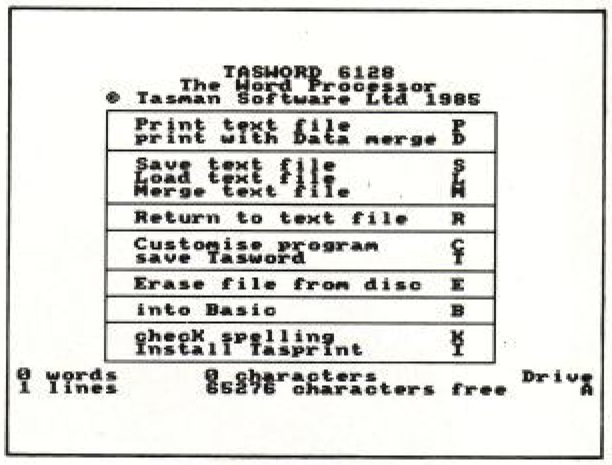
Program V

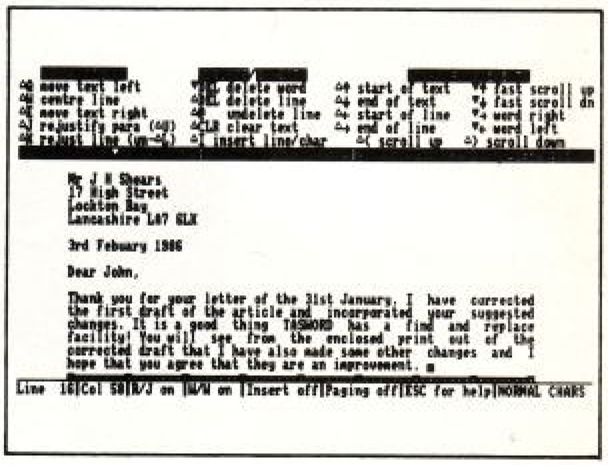
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TASWORD 6128

THE WORD PROCESSOR FOR THE AMSTRAD CPC 6128







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With all standard and many extra word processing facilities TASWORD 6128 is the most powerful of the TASWORDS, for the Amstrad CPC computers.

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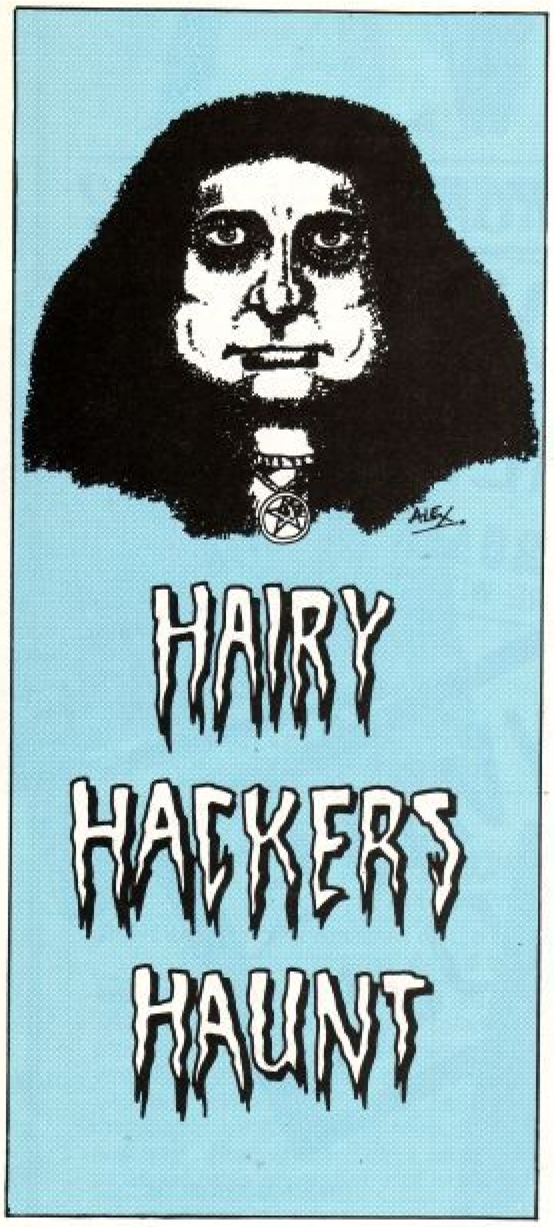
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TASPRINT 464 and TASCOPY 464 drive the following dot-matrix printers:

AMSTRAD DMP1	MANNESMANN	STAR DMP501/5/515	SHINWA CP-80
EPSON FX-80	TALLY MT-80	BROTHER HR5	COSMOS-80
EPSON RX-80	BROTHER M1009	DATAC PANTHER	AMSTRAD DMP2000
EPSON MX-80 TYPE III	NEC PC-8023B-N	DATAC PANTHER II	





Immaculate conceptions from the tub

HI folks! Welcome to the latest Hairy Hacking spot. This month, the whole thing is being done on location, in the bathroom. Complaints were received, and instructions followed to "clean up the Hairy Hacker spot".

So, here we are in the ****ing bath, getting clean, playing submarines and not drinking the bath water. Any road up, lots an' lots of letters this month, including this one asking as to my parentage. Whups! Dropped it in the water. All I can make out now is the letters DJ near the squiggle at the bottom.

Ho hum, you lot can have this little poke from Justin (amazingly clean) Garvanovic, while I feed the remnants of the soap to the loofah. It's infinite lives for Brian Bloodaxe, as found on the new EDGE collection (Classix 1). Rewind to start of program. (This can't be a PASTE[R] as there are one or two other little progs on the tape. OK?).

Well, a well-fed loofah is a happy loofah. Mind you, loofahs are probably a lot happier when they haven't been chopped up, skinned, dried and stacked on the shelves of The Body Shop.

But, I digress (as usual) from this here letter from David Marek of Edinburgh. He, his kitten Brandy, his rabbit Silver and guinea pig Squeak (they eat guinea pigs in South America) have sent in a couple of pokettes.

Pokette number one is for Super Pipeline II. It asks you for a number of lives, which it duly attempts to give you. More than nine lives, besides being unfair on cats, causes funny characters (vaguely recognisable as something called "the alphabet") appear, but don't screw anything up.

This is a PASTE [R] job. This means, "rewind the tape to the start, and run this routine." The origin of this remark is that when I load text into my Joyce from other things (Tandy 100s, Microwriters, pregnant calculators and so on) those words appeared in the text to remind me to insert the relevant

```
10 MODE 1:OPENOUT "d":MEMORY &4F3
20 tot=0
30 FOR n=&100 TO &118
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:tot=tot+a
60 NEXT n
70 IF tot<>2809 THEN PRINT"OOOPS. bet
   ter check the data lines.":END
80 BORDER 0:INK 0,0:INK 3,23
90 INK 2,0,23:INK 1,23
70 IF tot<>2809 THEN PRINT"OOOPS. bet
   ter check the data lines.":END
80 BORDER 0:INK 0,0:INK 3,23
90 INK 2,0,23:INK 1,23,0
100 PEN 3
110 LOAD "rhino",16000:CLS
120 CALL 16748:PRINT"Please wait."
130 LOAD "!axe4",&4F4
140 CALL &100
150 DATA f3,21,f4,04,11,f4,01,01
160 DATA 40,9c,ed,b0,af,32,54,68
170 DATA 3e,c3,32,4b,68,c3,7d,60
180 DATA 4a
```

phrase (so now you know, Cliff). Still, here's the poke:

```
10 OPENOUT "d"
20 MEMORY &3FF
30 LOAD"!P II"
40 INPUT "Number of lives (1-255):",l
   vs
50 IF lvs<1 or lvs>255 THEN 50
60 POKE &43D,lvs
70 CALL &400
```

Pokey number two is another Ghosts 'n' Goblins poke. Yes, I know I've published one before, but this one is different 'cos you choose the number of lives, and so can put your insignia (what's this bottle of aftershave doing in the bath?) in the hi-score table at the end of it all.

Wind past the loader and poke in this little lot:

```
10 OPENOUT "d"
20 MEMORY &12FF
30 MODE 0
40 BORDER 0
50 FOR i=0 TO 15
60 READ c
70 INK i,c
80 NEXT
90 LOAD "!p",&C000
100 LOAD "!code"
110 CLS
120 INPUT "Number of Lives (1-255) :"
    ,lvs
130 IF lvs<1 OR lvs>255 THEN 130
140 POKE &50A8,lvs
150 CALL &5000
160 DATA 26,13,0,15,24,6,16,2
170 DATA 14,1,3,11,10,9,18,25
```

Wind on past the first proggy on the tape, and run that little lot. Ought to keep you happy for a while, as should this one from Justin's monthly pokes disc:

Infinite lives for Codemasters DIZZY. (tape)
PASTE[R]

```
10 MODE 1:MEMORY 12345
20 tot=0
30 FOR n=&BE00 TO &BE3C
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:tot=tot+a
60 NEXT n
70 IF tot<>6152 THEN PRINT"Ut! there
   s a problem in the data.":END
80 LOAD ""
90 CALL &BE1A
100 DATA DD,21,00,BF,11,47,00,CD
110 DATA 4E,BC,21,13,BE,22,44,BF
120 DATA C3,00,BF,AF,32,3A,95,C3
130 DATA B1,73,21,2E,BE,22,77,3A
140 DATA 3E,C3,32,76,3A,11,40,00
150 DATA 21,FF,AB,C3,43,3A,3E,F6
160 DATA 21,55,D3,32,00,02,22,01
170 DATA 02,F3,F1,C9,4a
```

Where's the soap ? Ah, there it is. Now we'll have a letter from an Alex Dolmans, while I persuade my wife, Suz, to soap my back. Wonderful things, wives.

Anyways, Alex of Grembergen in Belgium, I think we've done the surprise mini-laser show when you press FBVC in Spindizzy earlier on, so I won't mention it. But, you and many others seem to have had a little trouble with the Molecule Man poke. I'm sure some people have had it working, so there must be more than one version about. I'll look into it if I can persuade a few back-issues out of the Ed.

Who remembers Stewart C. Russell ? He of "disq" fame ? Well, he's written in with a slightly modified poke for Elite which will please Steve Switzen of Reading (who was falsely accused by me), and embarrass one's Hairy self (for the same reason).

It turns out that the original Elite hack needs some more OPENOUTs and CLOSEOUTs around the MEMORY command, much like this:

```
10 'DISQ ELITE HACKING PROGRAM (C) ZZ
   KJ 16/9/86
20 OPENOUT "D":MEMORY &83F:CLOSEOUT:L
   OAD"COMMONXX",&1A40:LOAD"LARGEAXX"
   ,&840
25 MODE 1:INK 0,0:BORDER 0:INK 1,0:IN
   K 3,0:LOAD"COMMON2X",&C000
30 POKE &35CB,0:'No energy loss
40 POKE &382D,0:'Infinite missiles
50 POKE &8A8F,0:'Missiles blow up spa
   ce stations
60 POKE &896B,0:'Space stations launc
   h thargoids
70 POKE &7AA8,0:'One hit to destroy s
   paceships
80 POKE &7A4F,0:'No laser temp rise
90 POKE &4F02,0:'Infinite fuel
100 POKE &4C08,0:POKE &4C12,0:'No hyp
    erspace range limit
110 POKE &4BF4,0:'Constant galactic h
    yperspace
120 POKE &3849,0:'Constant escape pod
130 POKE &3866,0:'No cargo loss on es
    cape
140 POKE &2F6A,0:'Constant energy bom
    b
150 POKE &2F7A,201:'No blinding energ
    y bomb flash
160 POKE &FE78,3:POKE &FE86,24:'Infin
    ite cash
170 POKE &48C3,0:POKE &48CD,0:POKE &8
    932,24:'ECM jammer
180 POKE &4902,33:POKE &4906,246:POKE
     &4908,0:'Cloaking device
190 POKE &1E63,195:POKE &787C,0:POKE
    &7B61,0:'Indestructability
200 CALL &1C82
```

Ok, so it's not drastically altered, but I can't remember (or find) the original version either, so I've given it to you as he gave it to me.

Stalwart Stewart also has had Ron Maxwell's problem with mega-huuuuge scores on Gauntlet. Yes, I know that's not normally considered a problem, but some people do have a conscience.

The score table is to be found on the disc at sector 11, track 28. So whip out your copy of Utopia, or Discology and hack 'em up. Watch it though, 'cos there are at least two versions of Gauntlet.

Stewart's parting words were a plug for his latest program. This is the sort of thing that results from listening to the B52s, Velvet Underground, and Jesus and Mary Chain simultaneously. It is a new word processor cum advanced semantics checker and a scrolling shoot'-em-up in 64k. He calls it "Your Idiom". Aaaarrrghhhh!

As a complete aside, did you know that the world was very lucky with Elite's Paperboy ? The original submission was a grotty little mode one thing with a Speccy-sized screen. Good job they rejected it too.

But, one place you can always get good quality programming is good ol' Justin. Of whom we are currently thinking as we observe the large hairy spider emerging from the bath overflow. No anti-spider pokes, so while I make with the shower attachment, you can have this poke for infinite ammo and injuries in Gremlin's Death Wish 3 (tape).

This is a PASTE[R] job, and take notice that the injury meter will still rise, but when the "time to die" point is reached you won't die. So there. Kinda spoils the death wish bit though:

```
10 MODE 1:MEMORY 12345
20 tot=0
30 FOR n=&80 TO &A4
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:tot=tot+a
60 NEXT n
70 IF tot<>3091 THEN PRINT"Oh dear, y
   ou'd better check the data.":END
80 LOAD "",&4100
90 CALL &80
100 DATA 01,00,02,26,41,69,C5,D1
110 DATA 15,D5,ED,B0,21,93,00,22
120 DATA 05,01,C9,3E,18,32,F1,42
130 DATA 21,00,C3,22,8E,21,22,34
140 DATA 24,C3,84,03,4a
```

Here comes Big Sol, my favourite pussycat. She joins me in the bath sometimes, well not actually in it, she wanders round the edge. This can be remedied by greasing the sides with soap ......

Another ex-Poke of the Month winner, El Hosko, has written in with The Ultimate, best, most comprehensive, technically brilliant, and generally quite good really, pokeykins.

They've talked about it, they've dreamt about it. They said it couldn't be done. A miracle of science! They thought Dr. Frankenstein was crazy. They also thought Van Leuben was crazy (Him? He was as mad as a hatter).

It is yet another thing to do to Spindizzy ... Don't go away yet ! This lets you start anywhere on the map, *and* prints out the location as a beautiful shaded screen dump on an Epson-compatible printer.

So, for the world's ultimate Spindizzy

experience, type in this little lot:

```
10 '----- Program to print out Spindizzy locations -----
20 '
30 MODE 2:PRINT"Input start location -"
40 INPUT "  X (Hex value in the range [09,2F]) = ";x$
50 IF x$="" THEN x$="0"
60 INPUT"  Y (Hex value in the range [01,26]) = ";y$
70 IF y$="" THEN y$="0"
80 x%=VAL("&"+x$)+&28:y%=VAL("&"+y$)+&28
90 POKE &BF00,y%:POKE &BF01,x%
100 '
110 PRINT:PRINT"Press PLAY then any key: ";
120 WHILE INKEY$="":WEND
130 '
140 MODE 1:FOR i=0 TO 3:INK i,0:NEXT:BORDER 0,26:SPEED INK 1,1
150 '
160 add=&C000:READ x$:WHILE x$<>"END":z=0
170 FOR i=1 TO 31 STEP 2:x%=VAL("&"+MID$(x$,i,2))
180 POKE add,x%:add=add+1:z=z+x%:NEXT
190 READ tot,x$:IF tot<>z THEN 240
200 WEND
210 '
220 CALL &C000
230 '
240 MODE 1:INK 0,6:INK 1,18:BORDER 15
250 PRINT:PRINT"DATA ERROR -- TOT="+CHR$(7);tot:PRINT:END
260 '
270 DATA 3EFFCD6BBC21400011C0B03E6ACDA1BC,2021
280 DATA 213FC0117C8701B300EDB021F2C0116B,1748
290 DATA 8C010500EDB021F7C011708D010400ED,1543
300 DATA B021FBC011F397012500EDB0C320C121,1967
310 DATA 8F01E5AF322D883EFF21708C3600233D,1531
320 DATA FEFF20F8E106043E08322E88C5118000,1668
330 DATA 3EFFDD21708CF5D5E5CDF0BBE601280E,2427
340 DATA 3A2E88DDB600DD77003E01322D88DD23,1533
350 DATA E1D11313F13DFEFF20DC3A2E88CB1F32,2059
360 DATA 2E882B2BC110C5010901E5216B8CCDFE,1653
370 DATA 87E13EFFBC209B2125883A7899CD0988,1939
380 DATA 233A7999CD098821258801080CDFE87,1526
390 DATA C97ECD2BBD230B78B120F6C9D628F51F,2116
400 DATA 1F1F1FCD1888F1CD1888C9E60FC630FE,2010
410 DATA 3A3802C6077723C900002300000A0A0D,0754
420 DATA 00001B2A0600010D1B4A0CCD17A2CD60,0893
430 DATA 94CD7C87DD2A2098DD5E001600DD19DD,1863
440 DATA 222098DD5E01DD5602ED537899C32597,1819
450 DATA ED5B00BFCDAA963807113F40DD210008,1513
460 DATA ED537899DD222098C300800000000000,1403,END
```

Whew! The data can be in upper or lower case, and that's just as well 'cos he typed it in lower case, and I did it in upper case! Anyways, having typed in that lot, save it off 'cos it ain't arf a pain typing it a second time, and run it.

If all goes well, you should be invited to put in your fully rewound Spindizzy tape. More likely, knowing you lot well, you'll probably get a data error. Time to check your data again chum, and don't forget to save the corrected version either.

Right, off you go printing out spindizzy locations. If you want to start at the beginning (and where better to start?) hit Return in response to the silly questions. Otherwise enter your coordinates.

For those of you with not-so-Epson-compatibles, the escape sequences are in line 420. The sequence 1B2A060001 is the bit that says "print 256 lots of 8 dots at 720 dots/line", and the 0D1B4A0C does a carriage return with 12/216" line feed. Of course, if you fiddle with the code, you'll have to change or ignore the checksums, but that's hacking.

The wife rubbing my back with lovely, soft, apple-flavoured soap has put me in a particularly generous and kind-hearted mood, so I'll call this one "Grand High Proggy of 1987 (so far)", and give El Hosko as many of the games he wants as I can lay my soapy and clean little paws on (speaking of which, my youngest kitten, "Lucky", has just joined me in the bath). Well done there, El Hosko.

If ever a tape were to get an award for the naffest title, I think that Piranha's Mr Weems and the She vampires would get it. Still, Justin has given it the PASTE [R] infinite lives treatment. Fangs very much, Justin:

```
10 MODE 1:SYMBOL AFTER 236
20 tot=0
30 FOR n=&100 TO &11B
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:tot=tot+a
60 NEXT n
70 IF tot<>2954 THEN PRINT"Oh dear, better check the data.":END
80 hm=HIMEM+1:MEMORY 39999
90 LOAD "!weems.fnt",hm
100 LOAD "!wloader",41850
110 CALL 256
120 DATA 21,09,01,22,98,a3,c3,7a
130 DATA a3,af,6f,67,32,d4,4f,22
140 DATA fd,30,22,a1,4a,22,d8,4a
150 DATA c3,88,13,4a
```

Conan "Barbarian" Ablewhite of Leicester has wroted in with a nifty "Press these keys" poke for Mission Genocide (or ZTB , more of which later). Those keys are QED, followed by the number of the level you want. If that don't work, try it with the caps lock down.

Conan has also completely sussed Starion, so here are the passwords. You can read them while I wash my hair. Should be finished by next month:

Grid Passwords:
1=REDBREAST 2=SPACEWALK
3=ESTABLISH 4=PARACHUTE
5=ORPHANAGE 6=ADVENTURE
7=ECCENTRIC 8=COMBINATE
9=AMPHIBIAN

Block Password = AEROSPACE

Grid Passwords:
1=EMPHYSEMA 2=SNOWFLAKE
3=MAJESTIES 4=BALACLAVA
5=IMPROMPTU 6=STRAPPING
7=TRADEMARK 8=AGGREGATE
9=ACROPOLIS Block Password=METABASIS

Grid Passwords:
1=YESTERDAY 2=TRANSFORM
3=HOPSCOTCH 4=WAVEFRONT
5=TREMBLING 6=ECTOPLASM
7=FRAMEWORK 8=LAWNMOWER
9=LABYRINTH Block Password=TWELFTHLY

Master Password=STEAMY

Glub burble bloik glub. Sorry, typing with the keyboard in the water. What I was trying to type was a little bit from "Fizz" Fisentzov of Londinium, who has a neat cheat for Enduro Racer.

The gist of it seems to be to put a case or block of wood or whatever. on the numeric pad and cursor keys, and press on it when the game starts until you speed up. This apparently takes you up 'til stage 4 as long as you don't hit Q or move the joystick up.

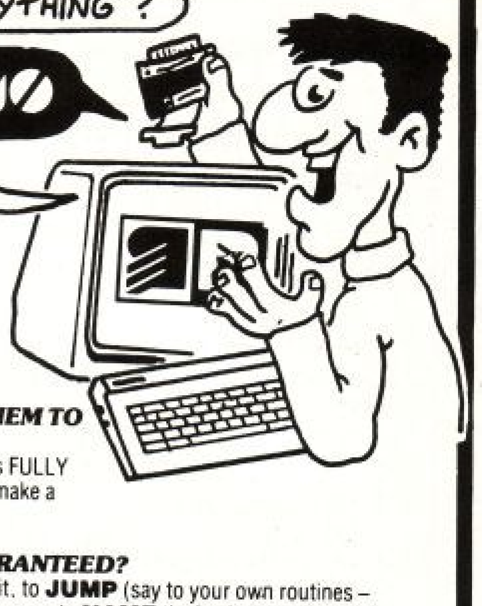
Right, next letter out of the sponge bag: Who has heard of a Serial 8056 Compact Printer? Well, if you own one, you may be annoyed at having to load up the wee initialisation proggy supplied with the printer.

Mike Williams of Wyke Regis has sent in a slightly modified version of the routine that lives in the "safe hole" in memory at &BF00. This means that once you have loaded it up, you can activate it again with a "CALL &BF00". This works after a reset, not a power-down. Still, here it is, devoid of all checksums, so careful how you dabble your digits:

```
10 ' Serial 8056 Compact Printer
20 'Initialization Program
30 ' Ver by M. Williams
30000 FOR loc=&BF00 TO &BF3E
30010 READ byte$
30020 POKE loc,VAL("&"+byte$)
30030 NEXT
30040 CALL &BF00
30050 DATA F3,C5,E5,D5,01,00,F5,2F
30060 DATA 57,ED,78,CB,77,20,FA,01
30070 DATA 01,EF,ED,49,1E,0A,7A,21
30080 DATA 73,00,F5,2B,7D,B4,20,FB
30090 DATA F1,ED,79,BF,1F,1D,20,EF
30100 DATA FB,D1,E1,C1,37,3E,00,32
30110 DATA F2,BD,DE,BF,32,F3,BD,3E
30120 DATA 00,01,00,EF,ED,79,C9
```

ROMANTIC ROBOT *present*





Q: WHY WOULD I NEED THE MULTIFACE TWO?

A: Basically to make back-ups of programs on a CPC 464, 664 or 6128 and also to enable you to study, alter and customize them.

Q: OH, DO I NEED TO UNDERSTAND THE PROGRAMS OR EVEN ALTER THEM TO MAKE BACK-UPS?

A: NO! – NOT with the MULTIFACE TWO – it is in fact the ONLY product on the market which works FULLY automatically. You load any program as usual, run it for as long as you like and when you wish to make a copy you just press the MULTIFACE's red button and follow the menu and on-screen instructions.

Q: HOW DOES IT WORK THEN? IS IT EASY? USER-FRIENDLY? ERROR-TRAPPED? IDIOT PROOF? GUARANTEED?

A: YES! It works a treat and it could not be easier. The menu gives four basic options – to **SAVE** a program, to **RETURN** to continue it, to **JUMP** (say to your own routines – invaluable for hackers) and **TOOL** to access the MULTI-TOOLKIT set of built-in utilities. For example pressing **S** to **SAVE** will first allow you to **NAME** the back-up and then let you save a **PROGRAM** or just a **SCREEN** to **TAPE** or **DISK**. Before the saving itself, MULTIFACE compresses the program so that it takes the least amount of space on tape/disk and will re-load as quickly as possible. Once a program is saved, you can **RETURN** or **JUMP**, use the **TOOLKIT** to change it, **SAVE** it again, etc.

Q: DON'T YOU CORRUPT THE SCREEN WITH YOUR MENU, INSTRUCTIONS, PULL DOWN WINDOWS, ETC.?

A: NO. MULTIFACE TWO has its own memory (8K ROM & 8K RAM) and a lot more hardware – thus when it finishes its job or when you re-load your back-ups, everything is **FULLY** and **AUTOMATICALLY** restored. NOTHING else can do this and on all other devices you will need to try to restore the screen: its modes, colours, windows, etc. – this takes quite some time and effort and the failure rate is high...

Q: OK, SO MULTIFACE CAN COPY FROM TAPE TO DISC, BUT CAN IT ALSO COPY FROM TAPE TO TAPE OR DISC TO DISC OR DISC TO TAPE?

A: Of course it can. MULTIFACE saves either to tape or disc and it saves whatever happens to be in the computer at that time: it does not matter whether it was originally loaded from tape or disc or even typed in, so all combinations are possible.

Q: SO FAR SO GOOD. BUT CAN'T I DO ALL THIS WITHOUT THE MULTIFACE?

A: ABSOLUTELY NOT! First, you need a hardware device, a "magic box", to be able to stop and copy any program at any stage – no software-based copier can in principle ever do that. Any tape/disc copier will just try to copy a tape as it is – if there are unorthodox leaders, speedlocks, protections against copying, etc., you'll end up with a problem – but not with a back-up. If you wish to back-up any game at any point, be it upon loading or after going through the lenslock or half-way through, if you wish to poke infinite lives and then save, etc. – you just can't do anything like it with tape/disc copiers – you need the MULTIFACE!

Q: MULTIFACE IS NOT THE ONLY 'MAGIC BOX' ON THE MARKET – WHY SHOULD I BUT IT MORE THAN ANYTHING ELSE?

A: There are four devices on the market: Action Replay by Datel Electronics, Disc Wizard by Evesham Micros, Mirage Imager and MULTIFACE TWO. Each manufacturer would naturally argue his product is the best buy – fortunately (for you and us), MICRONET recently compared all four units and MULTIFACE TWO came out the best in literally all respects: the most successful one – 100%!, the ONLY AUTOMATIC ONE, the FASTEST ONE both in LOADING *AND* SAVING time, the one taking the LEAST ROOM when saving – and you still get a couple of EXTRAS: a RESET button and an extensive and unique MULTI-TOOLKIT.

The summary of MICRONET tests: "MULTIFACE TWO from ROMANTIC ROBOT wins easily on all features! It is faster, more convenient, more successful, uses less space and has more facilities!"



RESET ● multiface two ● STOP

MICRONET RESULTS	ACTION REPLAY	DISK WIZARD	IMAGER	MULTIFACE TWO
Success Ratio	80%	40%	50%	100%
Average Saving Time	33.4sec	44.5	36.6	32.5
Average Setting (Correction) Time	15min	17.5	6.6	zero
Average Loading Time	21.7sec	40.7	36.6	19.7
Average File Size	88k	89k	53k	49.k

Tape-to-disk at the touch of a button. Ridiculous, you may say, but it works every time. *Multiface* can stop any program in its tracks and save the program from memory to either tape or disk. It's completely fool-proof. Similar products have had problems with screen size, colour and even sound; *Multiface* can handle all these without a second thought.

That alone would have satisfied many people, but Romantic Robot has gone one step further, incorporating a memory editor. No program is safe with this: everything is out in the open, including the Z80 registers, CRTC data and any part of memory.

Don't be fooled into thinking this will result in mass piracy, however. The *Multiface* unit itself must be plugged into your Amstrad to allow reloading of a program it saved.

Multiface II must be the cleverest hardware device at present – a necessity for disk owners who thought they were stuck with loading from tape every time.

AMSTRAD ACTION JANUARY 1987

The special price of £42.00 applies strictly to mail orders received with coupon below before the end of November, 1987.

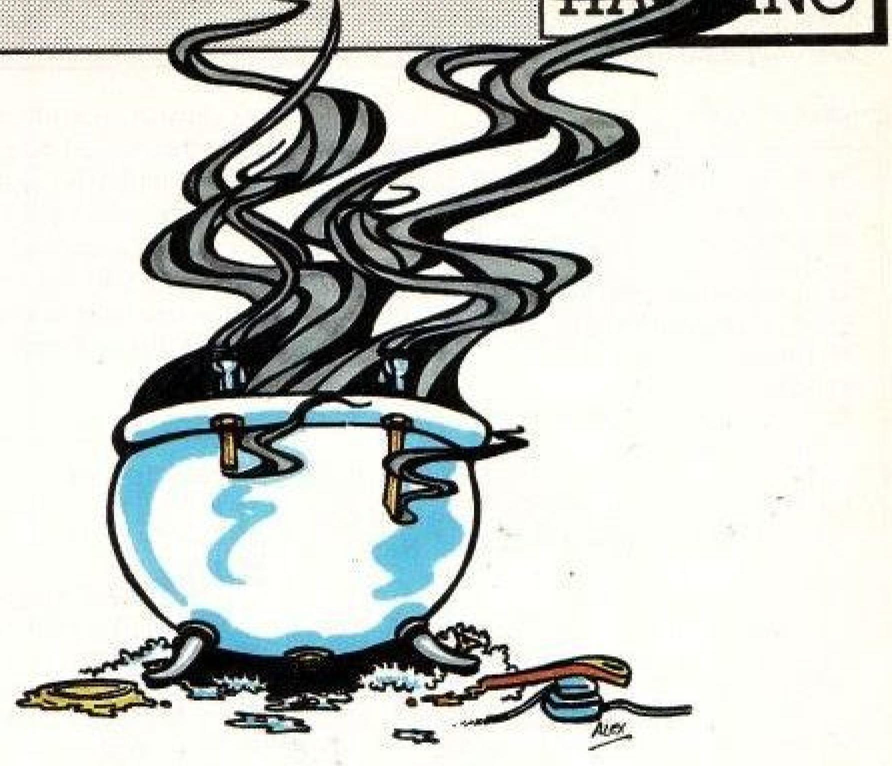
multiface two THE ESSENTIAL AMSTRAD CPC COMPANION

Please send me a MULTIFACE TWO at £42.00 plus p&p – UK £1.00, Europe £2.00, Overseas £3.00

I enclose a cheque PO for £........... or debit my No [ ] **Card exp..........**

Name & address ....

ROMANTIC ROBOT UK LTD 15 Hayland Close London NW9 0LH ☎ 24 hrs **01-200 8870**



Thanks for sending it on tape, Mike. You'll get it back and one to match.

Confusing the soap and a floppy disq is very embarrassing as the disq is a bit rough on my sensitive bits and gives little lather, the disq doesn't fit in the soap dish, the soap doesn't go in the disq drive, and Scott Moncrief's ZTB and Storm Bringer pokes don't need that much cleaning up.

Scott has sent in two wonderfully contrived tape-to-disq transfer programs (and noticed the ZTB QED), that nearly got past the Ed. Unfortunately, the phrase "Insert Blank Disc" gave the game away a bit.

Still, the pokes for ZTB and Mastertronics' Storm Bringer are quite acceptable. So, accept the ZTB poke (PASTE [R]) :

```
1 REM Mission Genocide Pokes
2 REM By Scott Moncreiff
10 MODE 1:MEMORY &85FF
20 LOAD"!",&8600
30 POKE &8629,&C3:POKE &862A,&80
40 POKE &862B,&BE
50 FOR ADD=&BE80 TO BEA0
60 READ A$:IF A$="ZTB" THEN 90
70 POKE ADD,VAL("&"+A$)
80 NEXT
90 CALL &8600
100 DATA CD,A1,BC:'** LEAVE THIS IN
105
110 DATA AF,32,C7,A0
115 '' INFINITE LIVES
116
120 DATA 3E,03,32,94,90
125 '' NO. OF LIVES
126'
130 DATA C3,2C,86,ZTB:'DONT REMOVE
```

Delete line 110 or 120, but not both or not a lot will happen. If you haven't got ZTB, here's a pokeykins for Storm Bringer from the same source:

```
10 MODE 1:MEMORY &9FFF
20 LOAD"!",&A000
30 POKE &A04C,&C9
40 CALL &A000
50 POKE &1951,0:POKE &1E31,0
60 POKE &1E6C,0:POKE &3786,0:' Infini
   te strength
70 POKE &16C7,7:' Start room (between
    0 and 34)
80 CALL &1388
```

And lastly, for those of you with neither Storm Bringer or ZTB, T.H. Spence's version of the flashy double-height routine from a couple of months back:

```
10 MODE 1:INPUT "Enter number of line
    [12 Max] ",n: IF n<1 OR n>12 THEN
    10
20 CLS:PRINT" Use 18 characters maxim
   um per line !":DIM d$(n): FOR a=1
   TO n
30 PRINT:PRINT USING"Enter line numbe
   r ## ";a;:INPUT"",d$(a)
40 IF LEN(d$(a))>18 OR LEN(d$(a))<1 T
   HEN LOCATE 1,a*2:PRINT CHR$(20);:G
   OTO 30
```

... and mind the differences between 1s and ls, or there'll be 1 L of a mess.

Ah yes, a SLIP (Speed-Lock Infiltrator Poke) or two for you the noo. This is in two parts: Part one is published once in a blue moon and is common to all SLIP proggies, part two is the stuffs that Justin churns out every month which you type in.

Part one is very large, and part two very small. As some of you may have missed part one, can we repeat the slip program here please ed ? *Yup, here it is -Ed*

```
10 ' Lock Picker Ver. 1.1 by Justin
20 MODE 1:MEMORY 12345
30 tot=0:ad=&7FF0
40 READ a$:IF a$="end" THEN GOTO 80
50 a=VAL("&"+a$)
60 POKE ad,a:tot=tot+a
70 ad=ad+1:GOTO 40
80 READ sum
90 IF tot<>sum THEN PRINT"ZUT! You'd
   better check all the data.":END
100 LOAD "!"
110 CALL &7FF0
120 DATA f3,21,00,80,11,00,be,01
130 DATA ff,00,ed,b0,c3,35,be,4a
140 DATA 21,0b,b9,36,b9,23,23,23
150 DATA 36,2e,ed,4b,02,bc,06,8a
160 DATA 11,00,b9,c5,1a,d5,11,79
170 DATA 03,91,21,8a,b9,ae,77,23
180 DATA 1d,20,fa,15,20,f7,d1,13
190 DATA c1,4f,05,20,e6,3e,c9,32
200 DATA 82,b9,c3,56,be,21,49,be
210 DATA 3e,c3,32,f4,37,22,f5,37
220 DATA 21,ff,ab,11,40,00,c3,c1
230 DATA 37,21,4b,00,36,45,23,23
240 DATA 23,36,99,f3,f1,c9,dd,21
250 DATA d9,bb,ed,5b,74,be,cd,67
260 DATA bb,dd,21,76,be,dd,6e,00
270 DATA dd,66,01,11,78,be,73,23
280 DATA 72,c3,03,bc
290 '

300 DATA 93,00,5a,bc,21,00,00,22
310 DATA 95,53,22,97,53,c3,49,4a
320 DATA "end",15958
```

Last SLIP pokeykins here, is for Imagine's Mag Max. Not quite an infinite lifer, but it takes out collision detection quite nicely thank you. Couldn't run off a version of this for my next driving test could you Justin ?

```
300 DATA 83,00,5a,bc,3e,c9,32,d5
310 DATA 1a,c3,00,02
320 DATA "end",15782
```

So then, that's it for another month. I shall leave you to ponder over my list of good reasons to use logo :

OK, now you've got that (no, Marcus Fletcher, it doesn't deprotect all speedlock proggies), you can add one of the part twos, listed below for your amazement and typing errirs:

Infinite lives for Ocean's infinitely wierd WIZBALL (tape)

```
300 DATA c6,00,83,bc,cd,e5,b9,21
310 DATA 88,be,11,00,f0,01,20,00
320 DATA d5,ed,b0,c9,af,32,3a,a9
330 DATA 3d,32,1f,a9,c3,8c,bc
340 DATA "end",18522
```

Infinite lives for the TAPE version of Road Runner.

```
300 DATA ee,00,c5,8c,af,32,3f,02
310 DATA 32,45,02,c3,00,01
320 DATA "end",15806
```

Turning out to being a long hacking session is this, I'll have to run some more hot water while you deal with Justin's Infinite lives and lots more for Firebird's tape version of REALM.

It's a nice long proggy (plenty of time for more hot water to run through even our furry pipes), including not only the normal style pokes, but also there's a Joystick control option, which as far as I'm concerned isn't included in the game.

Now then, as I mentioned, this ones a biggy so pay attention class:

Firstly. Its a PASTE[R] or forward past the file, job. Secondly. The poke presents you with a few options of which you can include or leave out which ever ones you desire. To take out the "Skulls don't kill option" you should take out line 210

If you don't want the keys redefined as a joystick then remove lines 240-280.

You should *never* remove line 300 as it won't work without it, so yar boo

sucks:

```
10 MODE 1:MEMORY &1CFF
20 WINDOW #1,15,27,10,10
30 WINDOW #2,15,27,13,13
40 tot=0
50 FOR n=&1000 TO &1023
60 READ a$:a=VAL("&"+a$)
70 POKE n,a:tot=tot+a
80 NEXT n
90 IF tot<>3018 THEN PRINT"I've found
    an error in the lines 200-240":EN
   D
100 READ a$:IF a$="end" THEN GOTO 130
110 a=VAL("&"+a$):POKE n,a
120 n=n+1:GOTO 100
130 LOAD "realm1",&1D00
140 CLS:CALL &1000
150 DATA 2a,38,bd,22,53,10,2a,01
160 DATA bb,22,38,bd,21,1a,10,3e
170 DATA c3,32,0e,bc,22,0f,bc,c3
180 DATA 00,1d,2a,53,10,22,38,bd
190 DATA cd,37,bd,af
200 DATA 32,7f,7c:'Infinite lives
210 DATA 32,95,74:'Skulls wont kill y
    ou
220 DATA 32,b4,83:'Dont die in sub ga
    me
230 ' Joystick control
240 DATA 21,f9,70,36,4a,24,2e,01
250 DATA 36,4b,2e,09,36,48,2e,11
260 DATA 36,49,21,5c,79,36,4a,2e
270 DATA 64,36,4b,2e,6c,36,48,2e
280 DATA 74,36,49
290 ' Don't alter this line
300 DATA c3,53,70,4a,"end"
```

A junior member of the Amstrad team was asked to go out into the big, wide world and ask some complete strangers what they would like to see in the next Amstrad product. His reply: "But I don't know any strangers ...."

Now Justin's latest on getting infinite lives out of Firebird's Parabola tape. PASTE[R]:

```
10 MODE 1:MEMORY 12345
20 WINDOW #1,13,27,10,10
30 WINDOW #2,13,27,13,13
40 tot=0
50 FOR n=&1000 TO &102D
60 READ a$:a=VAL("&"+a$)
70 POKE n,a:tot=tot+a
80 NEXT n
90 IF tot<>4522 THEN PRINT"Theres a s
   light problem with the data":END
100 LOAD "parabola1",&3000
110 CLS:CALL &1000
120 DATA 2a,38,bd,22,2e,10,2a,01
130 DATA bb,22,38,bd,21,1a,10,3e
140 DATA c3,32,1e,bb,22,1f,bb,c3
150 DATA 00,30,f5,2a,2e,10,22,38
160 DATA bd,cd,37,bd,af,32,14,85
170 DATA f1,fd,e1,c3,10,97
```

Oh, all right then, I concede. For those with disq drives, a pokette for a disq version of Road Runner. You could spend ages rewinding this one to the start.... To operate just follow on-screen instructions.

So easy anyone can do it:

```
10 MODE 1:MEMORY 12345
20 tot=0
30 FOR n=&80 TO &A7
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:tot=tot+a
60 NEXT n
70 IF tot<>2564 THEN PRINT"Ut All. Th
   eres an error in the data.":END
80 INPUT "Insert Disc and press ENTER
   ",a$
90 LOAD "loader.sbf",&4000
100 CALL &80
110 DATA 21,00,40,11,00,01,01,80
120 DATA 01,7e,ee,55,12,23,13,0b
130 DATA 78,b1,20,f5,21,9d,00,22
140 DATA 6f,01,c3,00,01,af,32,3f
150 DATA 02,32,45,02,c3,00,01,4a
```

Well, before the murky bathwater evolves into something, I'm going to get out of it. I must say though, that I'm really impressed with these wonderful waterproof PCs.

I can even use mine in the bath without getting electrocuooOOOOooOOOOooo!

ACU



SOFTWARE STRINGERS

***AMSTRAD Computer User** is not omnipresent, so keeping track of all the software houses is pretty tough. If we spent enough time on the phone or writing letters to all the software houses, we'd never get a chance to put together Britain's best Amstrad magazine.*

*So we need your help. **Amstrad Computer User** is looking for a team of software stringers. Amstrad enthusiasts who know a good game when they see one, can write well, and are prepared to work for the fame, glory and maybe the occasional freebie by writing in **ACU.***

Each stringer will look after his or her favourite software house – details of how to do this will be sent to everyone who is selected.

What we want you to do initially is to write to us about your chosen company. In less than 100 words you should let us know the names of some of the people who work there, what games they have brought out and what new releases are planned.

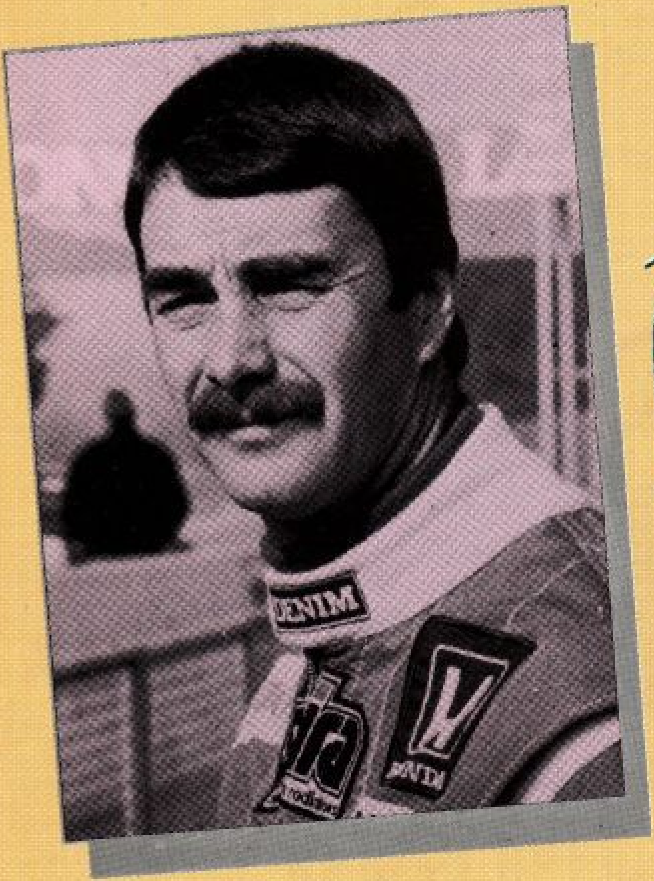
If you are a real fan of the company you will be able to do this without pestering them. Be careful when you select your company. Treat Activision as being different from Infocom or Electric Dreams.

Each label should have its own stringer. If you live close to a software house then it might be wise to write about your local heroes. So readers in Manchester might write about Ocean, those of you in Abingdon should consider Hewson, and anyone in Birmingham might favour US Gold.

You don't have to be local, but it might help. The most important thing is how well you write.

Send your articles to:

Software Stringer,
Amstrad Computer User,
169 Kings Road,
Brentwood,
Essex.





NIGEL MANSELL'S GRAND PRIX

Neeeyaaaaaaaah, the new game from Martech roars on to the screens. And as Murray Walker would say, if it comes first it'll be a winner. Simon Rockman takes his place on the grid (in the pits more like)

RACING is complicated. It taxes engineering, mechanics and teamwork to the utmost. Most of the motor racing games up to now have concentrated on driving the car. Following the right line around bends, overtaking in the right place.

Only Revs, which lamentably is not available for the Amstrad, has done a really good job of that. But Revs was a Formula 3 game. Once you start to mess with Formula 1 things get 10 times as complicated (and 50 times as expensive).

The driver is part of a team, he must cooperate to win the race. Initially there are tyre and suspension settings to worry about. Wing tolerances and on the Honda-powered Williams active suspension.

A race lasts two hours or 70 laps – whichever is the shorter. Cars can have new tyres fitted but for safety reasons they are not allowed to refuel. The maximum size of the petrol tank is limited by regulations.

The result is that if you go too fast early on in the race you are likely to run out of petrol before you see the chequered flag.

David Looker of DJL Software has been handed the task of writing Martech's Nigel Mansell's Grand Prix for the Amstrad. He appreciates it is no easy task to get this game into 64k.

David and Martech also appreciate that it is easy to make the game too sophisticated for the majority of players. To placate the meek there is a simplified version without any of the







technical problems. Just jump in and blast 'round the track. A bit like Playscape karting really. (A place in London where you can race real go-karts indoors at frightening speeds – better than any arcade game you've ever played).

Real men don't want namby-pamby video games. They want realism. To get this from Nigel Mansell's Grand Prix you have to enter the championship. Brace yourself for 16 races, from the twisty street circuit of Monaco to the straights of Silverstone.

You enter a battle of gladiatorial proportions against the finest drivers in the world. The circuits are based on the 1987 season, which means that Brands Hatch is excluded.

David has tried to make each circuit as authentic as possible; memory limitations restrict the number of features like the tunnel at Monaco. Each track is loaded from tape or disc so it would be possible to add circuits or even produce a track designer for the game.

You get to practice on each circuit, and then in the immortal words of Pole Position "prepare to qualify". Each track has its own qualifying time. If you fall too far short you won't even make it to the grid.

Those of you who are hot on multiplication will have worked out that 16 two hour races take a lot of time to play. Only the over-dedicated will accept this option.

You can save games between races, but even then two hours at one sitting will result in very sweaty palms, and dare I say it, a bored expression. Martech have compromised and offered a limited lap option.

The fuel capacity will be trimmed to match. Even with limitless fuel there would be problems if you drove too hard. Turning up the turbo boost puts an extra strain on the car, and there are always unforseen hazards like wheel nuts falling off.

The display looks cluttered, but contains all the information which would normally be sent to the driver over the radio – there is a scrolling message area for the transient data.

The radio may well signal you to pit stop for tyres. This should happen just before the halfway stage. Ideally you will have enough of a lead to stop, put on new rubber and leave the pits before the second car can catch you.

Pit stops had not been included in the pre-production version which I saw. Once they are in there will be an added degree of excitement.

The game uses some clever programming techniques. The mode and palette are split between the track and cockpit views, with a second palette switch above the track. This means that eight colours can be used for palette rotation thus smoothing the animation. With up to four cars on the track things could get quite crowded.

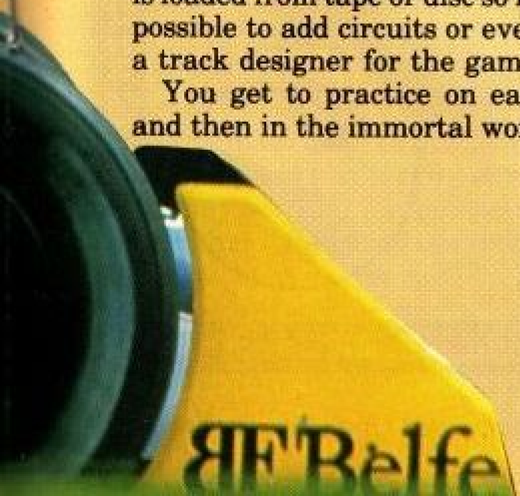
Turbo charged cars often spit flames out of the exhaust pipe. This is a result of unburnt fuel entering the turbo which is glowing red (or sometimes white) hot, and igniting. This is shown in the screen shots.

As befits the accuracy of Nigel Mansell's Grand Prix, the flames only shoot out under harsh acceleration.

In most racing games a major crash results in the loss of time and your car being returned to the track by an unseen mystical hand. If you prang you are out of the race. This means you will loose points and stand less chance of winning the drivers championship.

It is how well you do this year which governs how much you get paid next season. The game is fixed so that no other driver will build up an unassailable lead, but you can't rest on any laurels. Britain needs that trophy.

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Mode Madness

Dick Sargent sorts out some screens to make conversion easier

THE Amstrad screen – the Video-ram, not the monitor – is a fascinating piece of the computer, and never more so when you have inadvertently loaded a Mode 0 screen picture into a Mode 2 screen or vice-versa.

The kaleidoscope or black-and-white venetian-blind effect reminds you that you've gone wrong and it's a case of typing Mode 2, 1 or 0 and reloading the file. Strangely enough, some screens are acceptable when seen in the wrong mode.

The program in this article is designed to let you play around with screen artwork with a mini-editor, change modes without destroying the screen's contents and convert between modes so that, for example, a piece of artwork drawn in Mode 2 will be able to exist on a Mode 1 screen without looking strange.

Why convert between modes? Well, you may have a superb screen designed in Mode 1 to which you would like to add lots of text. If the design is strong, you can lose two of the screen's four colours, pop it into mode 2 and add reams of Mode-2 text.

Alternatively, you may want to add a splash of colour to a Mode 2 design by adding (in Mode 1) extra colour details. Or, if you're really feeling adventurous, you may want to merge one screen on to another – and to do that both screens must be in the same mode.

The mini-editor works on screens residing at their normal address of &C000, but it keeps a copy of the screen in ram at &4000. The program starts up in mode 2 and asks for a screen-file to be loaded from tape or disc. The screen loaded may not match the mode and if that is the case the result will look wondrous, weird or just plain silly.

It is for this reason the program asks you which mode the screen should really be in. If you are uncertain, try any mode at random. If the picture still looks wrong try another mode – you'll get it right by the third attempt. All experiments use the original screen from &4000, so you don't need to wait while the screen reloads.

Colours are set when the mode is chosen. Mode 0 inks are set to the Amstrad default values, except ink14 and ink15 which usually flash. Mode 1 inks are set to white, grey, red, black and mode 2 inks are set to white and black. You can change these colours if you wish by altering lines 290-300 in the Basic listing.

When editing a screen, the command B allows you to backup your efforts into ram at &4000. This should be done frequently so that, if any editing disaster occurs, the backup screen can be reclaimed from &4000 using command T. Whole screens can be saved to tape or disc by the command S and even back-up work at &4000 can be saved, should that ever be necessary.

Changing mode 1 artwork to appear in a sensible form on a mode 2 screen is an exercise which can have a high success rate – it doesn't take too long to decide how the four inks of a mode 1 screen should be changed into the two inks of the mode 2 screen. Converting mode 0 to mode 2 involves reducing 16 colours to two and is not always possible.

The mini-editor therefore only has a set of machine-code programs tailor-made for Mode 2-Mode 1 conversions – you can use them for Mode 1-Mode 0 conversions but the results are not predictable.

Tackling the impossible

There are 640 dots across a mode 2 screen on the X axis, and each dot or screen "pixel" relates to a single bit in the Amstrad's screen memory (VRAM). Mode 2 is therefore the straightforward screen mode.

Mode 1 gives 320 pixels and mode 0 gives 160 pixels across the screen and all text and graphics produced on these screens looks chunky. All modes provide 200 bits up the screen on the Y axis, but the computer's video chip plots each bit twice so we see 400 pixels and the Amstrad manual likes to pretend (for reasons of screen symmetry) that the Y axis runs from 0 to 399.

We, the humble computer users, are seeing "pixel-stretching" on the Y axis and it happens in all screen modes. Stretching is also used on the X axis, but only in modes 1 and 0. Basic isn't troubled by any of these stretching techniques and this makes it extremely

easy to write a graphics screen editor which works on any screen-modė artwork.

The cursor happily glides across the screen on the imaginary grid of 0-399Y 0-639X, ignorant of the fact that the mode 1 screen has only 320 plot-able points and the mode 1 screen has just 160 plot-able points on the horizontal axis. Machine code, however, needs to know the truth and nothing but the truth.

For the curious, the machine-code represented in data lines 500-715 disassembles easily enough, but anyone following it will need to know the composition of a mode 1 VRAM byte. It is ABCDabcd, where A is bit 7 and d is bit 0. Bits Aa give the colour of plot-able point 0. Bb does the same for point 2, Cc for point 4, Dd for point 6.

Note that mode 1 doesn't admit the existence of odd X-axis points and that mode 0 likes to ignore three out of every four X points! Converting between modes involves sorting that lot out.

Changing down

Changing gear from mode 2 to 1 involves losing every other X point along the 640 length of the mode 2 screen. Command U performs the conversion by losing the odd points while command V does the same conversion but loses the even points. You can't predict which command will give the better result, so try them both. Don't forget the editor works on the image in the &4000-ram area, putting the result in &C000-video ram.

As with all conversions and the merge routine, the computer will bleep when the complete conversion is in VRAM. Press N for no if you don't like what you see. The image will not be saved and the editor's cursor will appear on the screen. You may then edit the image, recall the un-converted picture from &4000, or load a new screen from tape or disc.

If the converted image is OK, then press Y and the image will be saved. The program then goes into edit mode. If the first key you press in edit mode is B, then the screen image will pass to &4000 before the picture is spoilt by the X-Y coordinates window.

Changing up

When you change up a mode, you gain plot-able points but lose colours. In order to reduce the number of colours in a mode 1 screen, a fair amount of machine-code trickery is needed. Rewording the INK command in Basic doesn't work. Thus INK 0,0: INK 1,26: INK 2,0: INK3,26 isn't sufficient – yes, the colours will change on the screen (giving a black-and-white screen in this example) but there will still be four INKS encoded in the computer's video ram.

All that Basic has done is change a few values in the video-controller chip register, thus operating a fast colour-change technique known as palette switching – it hasn't so much as peeked at the video ram, let alone altered it.

A machine code routine is needed which looks at every byte in VRAM and changes any unwanted ink (specified as a number 0-3), into the paper ink or the pen ink (also specified). There are 16k bytes to look at, and encoded in each byte there are four inks for four pixels, so to change an ink in VRAM takes 65,536 separate operations. On the screen you can see the change take place in about two seconds.

The commands needed to reduce the number of inks are H, I, J and K. First use the comand H to designate which of the four inks is to be paper-ink. Next use command I to designate which of the three remaining inks is to be the pen-ink.

At this point you can colour-edit, or let the computer take over. The computer will convert to mode 2 by keeping your choice of PAPER and PEN, and shading the third and fourth INKS (whatever colour they may be) into two stipple patterns.

The problem is that the stipples will look pretty much the same, so effectively the third and fourth INKS will become a single shade. To see whether this will look acceptable, press the preview command Z. The screen will stay in the mode it is in, but the INKS that would have been stippled change to a third colour.

If this is satisfactory, press X to do the real conversion. If it isn't acceptable, recall the screen you're working on with T and tackle the problem manually using H and I again, or by using J and K to physically remove one or more inks.

The merge

The screen merge routine uses the OR method of merging pixels from one picture onto the pixels of another (refer to ink modes in the CPC manuls for further details on methods of combining pixels). A straightforward merge (that is, without stopping to edit anything on the way) would be to load the first screen with a G command, then immediately use the A command.

The second screen will load to &C000 (not to &4000), then the first screen will be merged on to it. As usual, a bleep will prompt for the Y/N response, and the result can be saved or edited in the usual way.

The editor

The graphics screen editor is used for tidying-up a screen of artwork, adding pixels and erasing them, adding or erasing captions and drawing lines. The X-Y coordinates of the cursor are shown at all times in a top-of-screen window.

Note that this window only finds its way on to the screen image at &4000 if you use the back-up command B. Mode 0 screens are given an additional bottom-of-screen window so that prompts and input can be more easily read.

The edit program is as short as I could make it and my apologies for the lack of REM statements. A few comments here will allow you to unravel it.

GOSUB 270 (in line 120) starts the

A	merge one screen on to another
B	Back-up a picture to &4000
C	plot a Character string
D	draw a Dot (single pixel)
E	Erase a dot (single pixel)
G	Get a screen from disc/tape
H	designate which ink is to be the "paper"
I	designate which ink is to be the "pen"
J	force an ink to change to the paper ink
K	force an ink to change to the pen ink
L	draw a Line from the cursor to the Mark
M	Mark cursor position
O	Over print character string
P	Print a rectangle in pen-ink
R	Rub-out (prints a rectangle in paper-ink)
S	Save (whole screen) to disc/tape
T	Transfer a picture from &4000
U	convert Upwards eg:to mode 1
V	convert upwards (alternative to U)
X	convert downwards eg:to mode 2
Z	preview
0	view in mode 0
1	view in mode 1
2	view in mode 2

Figure I: Editor commands

ball rolling by asking for the first screen which must come from tape or disc. The option of a blank screen is not given: This is not a drawing package so a clean sheet of canvas is not much good to anybody. You can always load a previously created blank screen.

Program lines 130 to 165 are the program loop. INSTR is used to interpret the key presses and the correct command is thus selected from the list of subroutines in line 140. Lines 1805-215 keep the cursor from wandering off the screen, while two GOSUB calls to line 175 actually draw the cursor.

Each command has its own subroutine, each of which is very straightforward and does things such as draw and write on to the screen.

However, be warned, once run this program can lead to mode madness.

```
100 REM Screen editor & mode changer
    (EDIT.BAS)
105 MEMORY &3FFF:MODE 2:GOSUB 475:GOS
    UB 350
110 x=24:y=316:m$="":m%=0:z$="":o$=CH
    R$(23)+CHR$(1):n$=CHR$(23)+CHR$(0
    )
115 FOR z=240 TO 247:m$=m$+CHR$(z):NE
    XT z
120 m$=m$+"abc:m%=0:z$="":o$=CH
    R$(23)+CHR$(1):n$=CHR$(23)+CHR$(0
    )
115 FOR z=240 TO 247:m$=m$+CHR$(z):NE
    XT z
120 m$=m$+"abcdeghijklmoprstuvxz012":
    first=0:second=1:GOSUB 270
125 REM Warm Restart (eg; after a BRE
    AK) is GOTO 999
130 GOSUB 175:t=0:WHILE t=0:t$="":WHI
    LE t$="":t$=LOWER$(INKEY$):WEND
135 t=INSTR(m$,t$):WEND
140 GOSUB 175:ON t GOSUB 180,185,190,
    195,200,205,210,215,470,315,265,2
    20,225,270,325,340,385,415,310,30
    5,255,245,250,230,320,460,465,355
    ,435,300,295,290
145 IF x>639 THEN x=639
150 IF x<0 THEN x=0
155 IF y>398 THEN y=398
160 IF y<0 THEN y=0
165 LOCATE 1,1:PRINT "X:";USING "###"
    ;x;:PRINT " Y:";USING "###";y;:GO
    TO 130
170 REM Now all the subroutines.....
175 PRINT #1,o$;:PLOT x,y+2,1:DRAWR 0
    ,16,1:PLOT X-4,Y,1:DRAWR -16,0,1:
    PLOT x+4,y,1:DRAWR 16,0,1:PLOT x,
    y-2,1:DRAWR 0,-16,1:RETURN
180 y=y+2:RETURN
185 y=y-2:RETURN
190 x=x-offset:RETURN
195 x=x+offset:RETURN
200 y=y+16:RETURN
205 y=y-16:RETURN
210 x=x-32:RETURN
215 x=x+32:RETURN
220 PRINT #1,n$;:PLOT x,y,1:PRINT #1,
    o$;:RETURN
225 PRINT #1,n$;:PLOT x,y,0:PRINT #1,
    o$;:RETURN
230 CLS #2:INPUT #2,"0(4000) OR 1(C00
    0) ";n:addr=&4000:IF n=1 THEN add
    r=&C000:CLS #2
235 PRINT #2,"SCREEN NAME IS ";q$:INP
    UT #2,x$:IF x$="" THEN x$=q$ ELSE
     q$=x$
240 CLS #2:CLS:PRINT x$:SAVE x$,B,add
    r,&4000:CLS #2:RETURN
245 xo=x:yo=y:MOVE xo,yo:PRINT #1,n$;
    :TAG #1:PRINT #1,CHR$(143);:TAGOF
    F #1:PRINT #1,o$;:RETURN
250 xo=x:yo=y:MOVE xo,yo:PRINT #1,n$;
    :TAG #1:PRINT #1,CHR$(32);:TAGOFF
     #1:PRINT #1,o$;:RETURN
255 j$=o$
260 CLS #2:INPUT #2,"string ";t$:CLS
    #2:xo=x:yo=y:MOVE xo,yo:PRINT #1,
    j$;:TAG #1:PRINT #1,t$;:TAGOFF #1
    :PRINT #1,o$;:RETURN
265 j$=n$:GOTO 260
270 CLS:INPUT "Screen filename ";q$:L
    OAD q$,&4000:CALL &8000
275 CLS:PRINT "MODE 0 or 1 or 2":y$="
    ":WHILE y$="":y$=INKEY$:WEND
280 IF y$="0" THEN GOTO 300
285 IF y$="1" THEN GOTO 295
290 MODE 2:offset=1:INK 0,23:INK 1,0:
    BORDER 13:CALL &8000:GOSUB 345:RE
    TURN
295 MODE 1:offset=2:INK 0,23:INK 1,13
    :INK 2,7:INK 3,0:BORDER 14:CALL &
    8000:GOSUB 345:RETURN
300 MODE 0:offset=4:INK 0,1:INK 1,24:
    INK 2,20:INK 3,6:INK 14,3:INK 15,
    11:BORDER 13:CALL &8000:GOSUB 345
    :RETURN
305 xm=x:ym=y:RETURN
310 MOVE x,y:DRAW xm,ym:PLOT xm,ym:xm
    =x:ym=y:RETURN
315 CALL &800C:RETURN
320 CALL &8000:RETURN
325 CLS #2:INPUT #2,"PAPER INK TO BE.
    .";first:IF first>3 THEN GOTO 325
330 IF first=second THEN CLS #2:PRINT
     #2, "Warning PAPER=PEN";
335 RETURN
340 CLS #2:INPUT #2,"PEN INK TO BE.."
    ;second:IF second>3 THEN GOTO 340
     ELSE GOTO 330
345 IF offset=4 THEN WINDOW 1,80,1,2:
    CLS:WINDOW #2,1,80,24,25:CLS #2:R
    ETURN
350 WINDOW 1,80,1,2:CLS:WINDOW #2,18,
    80,1,2:CLS #2:RETURN
355 GOSUB 375:MODE 2:INK 0,23:INK 1,0
    :BORDER 13:GOSUB 430:CALL &80BD,s
    econd,third,first
360 PRINT CHR$(7);:y$="":WHILE y$="":
    y$=LOWER$(INKEY$):WEND
365 IF y$="y" THEN SAVE x$,B,&C000,&4
    000
370 GOSUB 345:RETURN
375 CLS:PRINT "SCREENSAVE NAME IS ";q
    $;:INPUT x$:IF x$="" THEN x$=q$ E
    LSE q$=x$
380 RETURN
385 CLS:INPUT "INKn BECOMES PAPER n=0
    123 ";h:IF h>3 THEN RETURN
390 IF h=first THEN RETURN
395 CLS:CALL &8014,h,first
400 PRINT CHR$(7);:y$="":WHILE y$="":
    y$=LOWER$(INKEY$):WEND
405 IF y$="y" THEN CALL &800C:RETURN
410 CALL &8000:RETURN
415 CLS:INPUT "INKn BECOMES PEN n=012
    3 ";f:IF f>3 THEN RETURN
420 IF f=second THEN RETURN
425 CLS:CALL &8014,f,second:GOTO 400
430 i(0)=0:i(1)=0:i(2)=0:i(3)=0:i(fir
    st)=1:i(second)=1:GOSUB 440:third
    =nxt:GOSUB 440:fourth=nxt:RETURN
435 GOSUB 430:CLS:PRINT "Paper= ";fir
    st;" Pen= ";second;" 3rd/4th= "
    ;fourth:CALL &8014,third,fourth:C
    LS:RETURN
440 IF i(0)=0 THEN nxt=0:i(0)=1:RETUR
    N
445 IF i(1)=0 THEN nxt=1:i(1)=1:RETUR
    N
450 IF i(2)=0 THEN nxt=2:i(2)=1:RETUR
    N
455 nxt=3:RETURN
460 GOSUB 375:MODE 1:CALL &811A:GOTO
    360
465 GOSUB 375:MODE 1:CALL &811E:GOTO
    360
470 GOSUB 375:CALL &BC14:CLS:INPUT "M
    erge filename ";r$:LOAD r$,&C000:
    CALL &8151:GOTO 360
475 RESTORE 500:A=&8000:D=495
480 S=0:D=D+5
485 FOR R=1 TO 8:READ V$:V=VAL("&"+V$
    ):S=S+V:POKE A,V:A=A+1:NEXT R
490 READ V$:CHK=VAL("&"+V$):IF CHK<>S
     THEN PRINT "DATA line";D;"is wro
    ng":STOP
495 IF A<&8160 THEN GOTO 480 ELSE RET
    URN
500 DATA 21,00,40,11,00,C0,01,00,0133
505 DATA 40,ED,B0,C9,21,00,C0,11,0398
510 DATA 00,40,18,F2,CD,4A,80,7E,035F
515 DATA CD,60,80,79,B8,CC,6C,80,0496
520 DATA 7E,07,CD,60,80,79,B8,CC,042F
525 DATA 76,80,7E,07,07,CD,60,80,032F
530 DATA 79,B8,CC,80,80,7E,07,07,0389
535 DATA 07,CD,60,80,79,B8,CC,8A,043B
540 DATA 80,23,DD,23,7C,FE,80,C8,0465
545 DATA 18,CD,DD,7E,00,CD,AE,80,043B
550 DATA 57,DD,7E,02,CD,AE,80,4F,03FE
555 DATA 21,00,40,DD,21,00,C0,C9,02E8
560 DATA 07,06,00,CB,10,07,07,07,00FD
565 DATA 07,CB,10,C9,DD,7E,00,E6,03EC
570 DATA 77,CD,9D,80,18,22,DD,7E,03F6
575 DATA 00,E6,BB,CD,9D,80,18,16,03B9
580 DATA DD,7E,00,E6,DD,CD,9D,80,0508
585 DATA 18,0A,DD,7E,00,E6,EE,CD,041E
590 DATA 9D,80,CB,3F,CB,3F,CB,3F,043B
595 DATA B3,DD,77,00,C9,5F,AF,D5,04BD
    ,9D,80,0508
600 DATA CB,1A,1F,CB,3F,CB,3F,CB,03E3
605 DATA 3F,CB,1A,1F,D1,C9,FE,01,03DC
610 DATA 28,05,FE,02,28,04,C9,3E,0260
615 DATA 02,C9,3E,01,C9,DD,7E,04,0332
620 DATA CD,AE,80,5F,CD,4A,80,7E,046F
625 DATA CD,02,81,07,07,07,07,07,0173
630 DATA 07,CD,FA,80,7E,07,CD,02,03A2
635 DATA 81,07,07,07,07,CD,FA,80,02E4
640 DATA 7E,07,07,CD,02,81,07,07,01EA
645 DATA CD,FA,80,7E,07,07,07,CD,03A7
650 DATA 02,81,CD,FA,80,CD,48,81,0460
655 DATA 18,CD,DD,46,00,B0,DD,77,040C
660 DATA 00,C9,CD,60,80,78,BA,28,03D0
665 DATA 0F,BB,28,09,B9,28,03,3E,021D
670 DATA 01,C9,3E,02,C9,3E,03,C9,02DD
675 DATA AF,C9,06,00,18,02,06,FF,029D
680 DATA CD,4A,80,7E,CB,40,28,01,0349
685 DATA 07,0E,00,07,CB,11,07,07,0106
690 DATA CB,11,07,07,CB,11,07,07,01D4
695 DATA CB,11,79,07,07,07,B1,0222
700 DATA DD,77,00,CD,48,81,18,DB,03DD
705 DATA 23,DD,23,7C,FE,80,C0,E1,04BE
710 DATA C9,CD,4A,80,7E,DD,B6,00,0471
715 DATA DD,77,00,CD,48,81,18,F4,03F6
999 GOSUB 290:GOTO 130
```

ACU

The secret of success

Palace has always produced the best graphics on the CPC – Cauldron, Antirad and Barbarian. Jerry Muir went to discover why one of the smallest software houses is also one of the most professional of them all

ONCE upon a time there was a Palace, and even though it was a very small Palace, it wanted to become bigger. So first it tried witchcraft and the supernatural, and after that it used a Barbarian and an Outlaw, until it became a much bigger Palace. And that's where our story really starts . . .

That little fairy tale sums up the Palace Software story. But as I sit with Pete Stone, head of the company, and Paul Norris, half of Binary Vision and co-author of Stifflip and Co, outside a pub just off the Pentonville Road, fairyland seems a long way away. The nearest thing to a palace is the Victorian architecture of St Pancras station.

Vid kid

"The very first part of the Palace group was The Video Palace, which I originally set up", Pete told me. This was London's first video mega-store, and it's still going strong in Berwick Street, right in the heart of the British film industry.

Though it's now solely devoted to videos, it wasn't always so. "When I was involved we were selling a lot of computer hardware and games. That's where my involvement started - from the retail end, right back at the start of computer games, in '82-'83.

"We were actually buying programs from the programmers in those days. They'd come in with cardboard boxes and carrier bags full of cassettes, often with just typed or even handwritten labels. And we were selling them by the lorry load".

That's a far cry from today's highly organised industry, and Pete was one of the people who realised that things had to change. "I'd originally come from the record industry and I was interested in taking computer games and doing it in a slicker, more professional manner.

"I was viewing it from a marketing point of view. The first problem I came up against was that you can devise slick packaging and a marketing concept, but it means nothing unless you've got a good game inside it". So Palace had to find a programmer and it took surprisingly little searching.

"A guy called Richard Leinfellner used to hang around the store, playing with the computers, while he was still at college. Eventually we gave him a job because he was one of the few people in the shop who knew what he was tálking about as far as computers were concerned", Pete chuckles.

So Richard became the Palace's programmer, with Pete providing graphics. For a plot they looked to a film that Palace Pictures had just released in the cinema and on video - the notorious Evil Dead! "By today's standards it was rather awful", Pete confesses, "but it was good experience because we saw the direction that we needed to follow".

When work started on the program, the movie was just another horror film which had gathered a cult following, but by the time of the game's release it was the height of the video nasties storm, and Evil Dead was being confiscated all over the country. But there's an old saying that no publicity is bad publicity, and the outrage helped ensure good sales for the game.

"We realised that the best way to create a successful program, at least for us, was as a team effort. Principally we wanted an artist, a programmer and a musician". This specialisation is now common, but Palace had to search out a graphics expert and eventually contacted Steve Brown.

Toil and trouble

With the working group established, they decided to continue the horror theme and hit on the idea of a game based around Halloween. "Initially we thought of the movie, but soon realised that it didn't make a good scenario. But out of the idea of witches and pumpkins sprang Cauldron.

"During the writing of Cauldron a fourth element surfaced, which was gameplay. Steve had come in to handle graphics but was taking over the making of Cauldron, throwing in more and more good ideas until it became his game in the end. We soon discovered that he has a good feel for the making of a good game".

Cauldron's success merited a sequel. Cauldron II was based almost solely on Steve's ideas. "We began to spread a bit further during this period though. The Commodore 64 was growing, but we found that it was difficult to convert to other machines from it, so we started to work on a number of versions simultaneously". This meant a sideways move for Richard from the C64 to the Amstrad, which he soon mastered.

Another aspect of their expansion was to develop more than one game at a time. "We discovered Dan Malone, who started work on Sacred Armour of Antirad. We got a sort of production line going, whereby we had Steve and Dan as the main instigators of the games, both working on the graphics, and we had a team of programmers for the different machines".

Keeping the production line going is now part of the Palace plan, so Steve started work on Barbarian while Antirad was still under development. The result is a steady flow of programs, but the company doesn't intend to put out products for the sake of it.

However the number of releases is about to undergo a hundred per cent increase as Palace branches out with a new label, Outlaw Productions. "Within Palace Software we're moving towards arcade style games more and more, instead of arcade adventures. We're veering more to faster games that get the adrenalin going.

"But we wanted to spread our wings a bit further and to bring in different styles of game. And that's where the Binary Vision connection comes in. They made Stifflip for us, and we were very pleased with the way that went.

Outlaw breaks out

"So we decided to launch a second label. Palace can continue to do what it's doing, but we can also start to do other things. In a way Stifflip is possibly the first and last game like that. It's a sort of junction in our history. From it springs Outlaw.

"The reason we've chosen now to start the label is that there are a lot more very good programming teams around. People have got more experience - people like Paul and Rupert (Bowater, his partner in Binary Vision) who've been working in the business for four or five years". The first release is from Sensible Software, who did Wizball and Parallax, but sadly Shoot 'em up Construction Kit is only appearing on the Commodore.

The moment seemed right to talk to Paul about the company he and Rupert formed after they left Electronic Pencil Company, designers of The Fourth Protocol. At the time of the interview work was still underway on the Amstrad Stifflip, but Paul assured me that it would be almost identical to the Spectrum version.

"The idea came from two directions. Pete and Matthew approached Rupert and I and said they were interested in doing this sort of a game. So we looked at their ideas and the sort of company that they were, because we tend to like smaller, independent companies who we can work with and trust to do justice to the game.

Stiff upper lip

"They said that they were thinking of doing a game based on certain characters from the 1920s and '30s. From our own point of view we'd been thinking of comicy, filmy, cartoony effects, so instead of merchandising a character from the period we decided to create our own and get a very strong element of satire in there.

"Then we asked what we didn't like about the way games are and what we could do that would be a little better than that. We wanted to combine an arcade game and an adventure game, because that's where so many people have tried and, for our money, come up with such samey product. We wanted to get something that was different in that combination.

"We'd already got a strong theme, and that's when we decided to have several characters, to add an element of characterisation to it. We all felt that the main difference between a book or a film and a video game is that in the former you get involved with the various characters. But when you are an amorphous blob or an anonymous spaceship it's much harder to feel that identification, that empathy.

"It also gave us the opportunity to explore the visual effects that interest us. If we do have any advantage it's that most games designers aren't actually programmers. As we combine both skills we wanted to explore the effects you could do with programming and graphics combined".

The result is a game jam-packed with ridiculous effects such as dissolves, wipes and page flips. The initial reaction from outsiders was that it would never transport across the systems, but with the exception of one or two small tricks, Binary has found a way of converting it.

During the birth of Stifflip, Paul was studying, which is why he worked with Rupert. Now that he's free from the pressures of college they'll both be working on separate projects and Paul's is already settled a new title for Outlaw. Work's just started, so it'll be a long wait before we see the results.

Future trends

Turning back to Pete, I ask about his recent American trip. "There are several trends over there that excite me and one is the coin-op. It's been traditional for home computer companies to license coin-op titles, but it's now getting to the point where the two are beginning to merge.

"There's a big crossover starting to happen. Some of the arcade machines actually have Amiga hardware inside them, so it's getting to a state where it's possible to have the standards of the arcades in the home. That coincides nicely with the direction that Palace is starting to go, with more fast and furious arcade games. I can foresee a situation where we're actually writing for both".

Pete expresses interest in the idea of a possible budget label one day, but says that at the moment Palace aren't geared to the volume of releases required by the £1.99 market. Instead they're putting their efforts behind the state of the art 16-bit machines.

"We're beginning to do quite well in the States now and really the American market is going over to 16 bit very quickly. The UK and Europe will almost certainly follow on in the not too distant future. If we want to stay involved in full-price software we have to follow.

"In terms of games though it's very exciting because you're going to be able to get that much more out of the machines". Though Palace will be following the Amiga and ST, Pete doesn't rule out the PC. "It's rather limited in its games capabilities, but having said that, already in the States there are lots of people with PCs.

"I have a PC at home for word processing and that sort of thing, but I might as well be playing on it as well, even though it's not the ideal games machine. In fact, the PC is probably the biggest machine for games in the



Pete Stone and Paul Norris . . . palace professionals

States, believe it or not."

Pete won't be drawn when I ask him to describe a Palace game. "It changes" he says, then adds "and it depends on the person doing them. It's more a case of there being a Steve Brown game, a Dan Malone game and in future other names will come in on that.

Go for graphics

"Pure Palace games tend to be very graphics-orientated though. We put a lot of emphasis on getting the best graphics and the best sound. Richard Joseph is our current musician and he's provided a lot of input ever since Cauldron II".

At this point Paul interrupts: "He worked on Stifflip and I think he managed to bring across that same atmosphere on the soundtrack from the Commodore to the Spectrum. People just start laughing when they hear it.

"He is so conscientious. We came to him with a list of what have to be the most absurd sound effects of all time. It was before we showed him the game, and he looked through this list of everything from arrows hitting targets to chimpanzee noises, and looked slightly bemused. But when he saw the game everything fitted together and he got really enthusiastic".

Sex and violence

By now we seem to have covered most of the bases, but there's one question still outstanding and I've saved it till last. "Tell me about Maria Whitaker," I ask. The curvaceous page three star and cover girl from Barbarian created quite a storm, with Boots banning the original inlay card. Pete is unrepentant.

"It was Steve Brown's idea originally. When he conceives a game he conceives it in total, including the package. He wanted a sword fighting game based round the swords and sorcery theme, and he wanted a cover in the style of the fantasy artist Boris. So he hit on the idea of using Maria Whitaker.

"Finding her was the easy bit. The male model was much more of a problem. Then Steve had great fun building the set. He even made up Maria Whitaker's clothes, but she was so big in the relevant places that the bra and knickers kept falling apart during the photo shoot and he had to get a pair of pliers to fit the metal clasps back together again!"

Then Pete becomes more serious. "People who complained that it was a sexist cover seem to forget that it was an idea set in a certain genre, which is all about men with huge muscles and women with rather large bosoms. We were slightly upset that people didn't see the funny side of things.

"But I'd also argue against the accusations of sexism. People tend to forget that there's a male as well as a female on that cover. Boots told us that we couldn't have a semi-naked woman, but that we could have a semi-naked man".

It looked like we were about to get into heavy areas of sexual politics, so I switched off the tape recorder and we set off back down the dusty London road to Palace's office above the Scala cinema. As we went I asked Pete and Paul whether they think software will become more "adult".

Magic remains

Paul believes that the structure of the industry sets up a stereotype consumer which it then caters for. But in doing so it cuts itself off from anybody who doesn't conform to that stereotype. The way forward, to develop more games as original as Stifflip, is to break those artificial boundaries.

But Pete smiles. "I hope we'll never grow up. I hope we'll always be Peter Pans." And for a moment there was a magic of sorts, thanks to the Palace on Pentonville Road.

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Part 12 **ASSEMBLY POINT**

WIMPs are here to stay. Lest you think, gentle reader, that some sociological treatise has inadvertently found its way between the pages of your Amstrad mag, let me hasten to add that WIMP stands for Windows, Icons, Mice, Pull-down menus – the components that make up the modern operating system as exemplified by the Apple Macintosh, the Amiga, or Gem on the Amstrad PC.

Make life easy – join the WIMPS

But soft (ware) – what byte through yonder window breaks? In this month's paneful machine code program, Peter Green shows what a WIMP he can be

The basic philosophy behind WIMP systems is that the ordinary computer user panics at the sight of an A> prompt, and is incapable of remembering the exact syntax of the command to copy a file arriving at the serial port to directory »sales»invoices»august on drive E: of the partitioned hard disc. Since many businessmen seem to have difficulty in making a manual typewriter perform, this assumption is not an unreasonable one.

WIMP systems work by hiding the naked operating system under a second layer based on pictures and menus instead of typed commands. The idea is that anyone knows how to pick an object by pointing to it, so the screen represents a "desktop" and is covered with small "icons", or pictures, each one corresponding to a file on the current disc. In effect the computer is displaying a picture of the disc contents, instead of the list of filenames you get when you type CAT or DIR.

Icons can have different shapes to depict the type of file. For example, text files such as this article might look like a small sheet of paper with writing on, while a runnable program might be represented by a folder.

To run an application, you don't need to type LOAD, RUN or its filename: Simply use a mouse (much easier in this type of application than a joystick or cursor keys) to move a cursor over the "desktop" until it's on the required file icon, then press the mouse button. The operating system then loads and runs the program.

Similarly, you don't need to remember if deleting a file is ERA, DEL or ERASE, or worry about typing *.BAS instead of *.BAK and accidentally wiping a disc's-worth of Basic programs. There's a picture of a trashcan *dustbin to the English – Ed* on the desktop, and a file is deleted by pointing to its icon, dragging it across the screen behind the cursor (like a big sprite) and into the trashcan, just as on a real desk you'd throw a folder in the wastebin.

Of course there's a limit to how much you can do using only graphical representations of processes. Roughly speaking, icons represent programs and data files. It's less easy to see how you might use pictures to efficiently tabulate the available printing options in a word processor, or the graphics pixel write mode (FORCE, AND, OR or XOR with screen contents) in an art package.

So within a running program we need another mechanism for simplifying user input, and the one that WIMPs employ is the menu. After all, it's much easier to order numbers 5, 23 and 39 in your local Chinese rather than Sichuan Prawns in Chili Sauce, Stir-fried Broccoli with Hoisin Sauce, and Five Spice Red Braised Pigeons (drool!).

As with the desktop icons, selection is made by pointing. As the mouse moves the cursor arrow up and down the menu, the text in the line under the cursor is highlighted by inverting its colours. Pressing a button selects the highlighted option.

A complex program may need many different menus, and obviously they can't all be on screen at once. Hence the "pull-down" part of the WIMP system: Only the menu names are displayed (like Soups, Main Courses and Desserts in a restaurant), and selecting a menu name makes the menu appear onscreen like a window blind being pulled down.

After selecting an option, the menu disappears. It is also possible for menus to be nested, so that selecting an option causes a secondary menu to open up. For example, a word processor might have a menu called PRINT DOCUMENT with options:

DRAFT   QUALITY   LETTER QUALITY

and selecting the letter quality option would open up a new menu with options:

BOLD CONDENSED ITALICS

When BOLD, say, is selected, both menus would disappear and the document would be printed out in bold typeface.

Loss of memory

Alert readers will have realised that for menus to come and go on screen like this means that the computer must store away what was displayed behind the menu, and copy it back to the screen when the menu closes.

This, of course, eats up memory like nobody's business – after all, just one screen on the CPC464 takes up one-quarter of all the ram in the machine. A complex operating system with multiple windows and menus of any size, anywhere on screen (even overlapping) needs memory, and lots of it.

The first commercially viable WIMP computer was the Apple Macintosh (Apple's earlier Lisa sank under the weight of its price tag) but the first users discovered that very little of the 128k of ram was available for the programs – the desktop hogged the bulk of it.

This made the Mac a real pain to use,

with much time-wasting swapping of discs (yep, it only had one disc drive). It was like designing a sports car that required 20 minutes to learn to drive and was capable of 150 mph – if only the petrol didn't run out every three miles. Only in recent years, with the addition of megabytes of memory and hard discs, has the Mac really started to strut its stuff.

Needless to say, this month's sample program isn't a Mac-buster. What I've done is to take last month's disc format program and "hide" it behind overlapping WIMP-style menu windows.

As before, the program will format a disc in either drive, to data or vendor formats, but the required choices are made from a series of windows. The window system uses a standard data layout so that by following the rules, you can design your own menus for your own application.

Opening the window

The program allows up to a total of eight menus to be defined, each one being assigned one of the text streams available under the Amstrad operating system. However, I suggest that stream (and hence window number) 0 should be avoided, and left for program output or user text input (like typing in a filename).

Stream 0 should also be set up, at an early stage in the program, to a text window away from the other menus. The Amstrad firmware directs disc error messages to stream zero, and it would be unfortunate if "Disc missing – Retry, Ignore or Cancel" got printed right across one of your menus.

To open a menu, put its number (1-7) in the A register and CALL window – the routines I've written do the rest. The program uses the menu number to look up (in window–table) the address of the data table for the window. The format of the data table is as follows:

WIDTH: One byte: Number of characters in menu string (not including the terminal zero)
HEIGHT: One byte: Number of strings in the menu list
ROW: One byte: Screen row for first line in menu (top line = 0)
COLUMN: One byte: Screen column for first letter in menu (leftmost column = 0)
SIZE: Two bytes: Space to store required window depth and width in screen bytes (needs no initialisation)
ADDRESS: Two bytes: Screen address of top left corner of window (needs no initialisation)
AREA: Two bytes: Total number of screen bytes to be saved before overprinting the menu (needs no initialisation)
PROGRAMS: Two bytes: Address of table of programs for menu routines
LIST OF STRINGS: To be displayed in menu – each string must be same length (pad out with spaces if necessary) and terminated by a zero.

Each string in the menu list requires an entry address in the window program table – this is the address of the routine that will be executed if that line in the menu is selected.

If it all seems a bit complicated, just look at how the data tables for the format windows are laid out, noting that the use of assembler labels makes the tables easier to "fill in".

The routines called when a selection is made can do many things – even open other windows, as in this application – but there are certain, fairly obvious limitations. Window programs shouldn't change screen mode, and clearing the screen is another obvious no-no.

If you change text streams, as FORMAT does, remember that the firmware call TXT–SET–STREAM returns the old stream number. You should save this on the stack and make sure you re-select the stream before quitting the subroutine, otherwise the screen display might get messed up.

The only exit condition that your menu subroutines should observe is the state of the carry flag. If you want the menu to stay on-screen when the subroutine has finished, set the carry flag. If the menu should be removed from the screen, clear the carry. In FORMAT, all menus are cleared from the screen after option selection except window 1 – the main menu.

Screen contents are saved in the free ram available between the end of the program and the start of the firmware, at &B100. A short program will allow a lot of space for saving the screen areas beneath windows, but if overflow does occur, the program doesn't attempt any graceful recovery. It just prints an error message and quits.

There's no point in reprinting all the format source code from last month again – instead, use the following procedure. First, load in the format source code to your assembler/editor, and delete everything from the start of the listing up to (but not including) the label .format. Also delete the subroutine .A–range which is not required by this version.

Now type in Listing I, putting it in front of what's left of last month's code. Then modify the code after the label .fB1 as shown in Listing II, and modify the code after the label .format–D as shown in Listing III

Finally, add the line shown in Listing IV to the very end of the source code. The $ is the standard assembler directive meaning "the current value of the address counter", so this line provides the address of the end of the program.

Now you can assemble the new version of the format program, which can either be loaded at &170 and CALLed (for this you will need a load-anywhere utility such as the LOAD on the Arnor UTOPIA ROM), or converted into a runnable machine code program using the techniques described in an earlier issue of *Amstrad Computer User*.

Next month, we gather some stix *not another misprint, honest – Ed.*

Listing I

```
org &170'

write 'format13.   "

.RESET                EQU 0

.KM_WAIT_CHAR         EQU &BB06
.KM_READ_CHAR         EQU &BB09

.TXT_INITIALISE       EQU &BB4E
.TXT_OUTPUT           EQU &BB5A
.TXT_RD_CHAR          EQU &BB60
.TXT_WIN_ENABLE       EQU   EQU &BB09

.TXT_INITIALISE       EQU &BB4E
.TXT_OUTPUT           EQU &BB5A
.TXT_RD_CHAR          EQU &BB60
.TXT_WIN_ENABLE       EQU &BB66
.TXT_SET_CURSOR       EQU &BB75
.TXT_INVERSE          EQU &BB9C
.TXT_STR_SELECT       EQU &BBB4

.GRA_MOVE_ABSOLUTE EQU &BBC0
.GRA_MOVE_RELATIVE EQU &BBC3
.GRA_GET_ORIGIN       EQU &BBCC
.GRA_SET_PEN          EQU &BBDE
.GRA_LINE_RELATIVE EQU &BBF9

.SCR_INITIALISE       EQU &BBFF
.SCR_SET_MODE             EQU &BC0E
.SCR_GET_MODE         EQU &BC11
.SCR_CHAR_POSITION EQU &BC1A
.SCR_PREV_BYTE        EQU &BC23
.SCR_NEXT_LINE        EQU &BC26
.SCR_PREV_LINE        EQU &BC29
.SCR_SET_INK          EQU &BC32
.SCR_SET_BORDER       EQU &BC38

.KL_CHOKE_OFF         EQU &BCC8
.KL_ROM_WALK          EQU &BCCB
.KL_FIND_COMMAND      EQU &BCD4

.KL_FAR_PCHL          EQU &001B

.width                 EQU  0
.height                EQU  1
.row                   EQU  2
.column                EQU  3
.size                  EQU  4
.addr                  EQU  6
.area                  EQU  8
.prog                  EQU 10
```

```
CALL KL_CHOKE_OFF       ;Reset all external ROMs, RSXs etc
LD DE,prog_end          ;Lowest usable byte in memory
LD HL,&B0FF             ;Highest usable byte in memory
CALL KL_ROM_WALK        ;Initialize all external ROMs
LD (free_start),DE      ;Store start of free memory
OR A                    ;Clear carry
SBC HL,DE               ;Now HL contains size of free memory
LD (free_RAM),HL        ;Save this value

LD HL,disc
CALL KL_FIND_COMMAND    ;Check that disc drives are actually fitted!
JR C,main_program       ;Do program if disc(s) fitted
LD HL,no_disc
CALL print              ;Else print error message
CALL KM_WAIT_CHAR       ;Wait for a key-press
JP RESET                ;Reset the machine

.disc
TEXT "DIS","C"+&80

.no_disc
TEXT "Disc drive not fitted - press a key to abort",0

.free_RAM    WORD 0
.free_start  WORD 0

.main_program
CALL init               ;Set up mode and colours

LD HL,&0015
LD DE,&2718
CALL TXT_WIN_ENABLE     ;Set up stream zero for status messages

LD A,1                  ;Let A = 1
CALL window             ;Open main menu
JP RESET                ;and reset machine when finished

.init
CALL SCR_INITIALISE     ;Initialize all screen variables
CALL TXT_INITIALISE     ;Initialize all text windows
XOR A                   ;Set A to 0
LD HL,inks              ;Point to list of colours for the inks

.set_inks
LD B,(HL)               ;Fetch first ink colour into B
INC HL
LD C,(HL)               ;and second ink colour into C
INC HL
PUSH AF
PUSH HL
CALL SCR_SET_INK        ;Set ink in A to colour pair in BC
POP HL
POP AF
INC A
CP 4
JR NZ,set_inks          ;Loop until all inks done

LD BC,0
JP SCR_SET_BORDER       ;Set border black and exit

.inks
BYTE 0,0,26,26,20,20,24,24

.window
;-------------------------------------------------
; Open a menu window and process user input
; Entry; A contains a window number
; Exit;  IX preserved, all other registers corrupt
;-------------------------------------------------

PUSH IX                 ;Save variable pointer for parent (previous) window

CALL A_to_IX            ;Point IX to variables for new window
CALL TXT_STR_SELECT     ;Set text stream to new window number
PUSH AF                 ;Save parent window number

CALL scr_window         ;Test for free RAM to store new window position
JR NC,window_error      ;Not enough room so abort program
CALL store_window       ;Else save current screen contents
CALL print_menu         ;Print up the menu strings
CALL key_loop           ;Now allow user selection, and process selection
CALL restore_window     ;Erase current window

POP AF                  ;Get parent window
CALL TXT_STR_SELECT     ;Set text stream to parent window number
POP IX                  ;Restore variable pointer for parent window
RET

.window_error
XOR A
CALL TXT_STR_SELECT     ;Select status window
LD HL,we_message
CALL print              ;Print error message
CALL KM_WAIT_CHAR       ;Wait for a key press
JP RESET                ;and reset the machine

.we_message
TEXT 4,1,"Out of RAM - press a key to abort",0

.A_to_IX
;-------------------------------------
; Calculate pointer to window variables
; Entry; A contains window number
; Exit;  IX points to window variables
;        Flags, DE, HL corrupt
;-------------------------------------

LD D,0
LD E,A                  ;Window no. to DE
LD HL,window_table      ;Pointer to table of data pointers
ADD HL,DE
ADD HL,DE               ;HL = window_table + 2*window_no
LD E,(HL)
INC HL
LD D,(HL)               ;DE points to data for required window
PUSH DE
POP IX                  ;Copy to IX
RET

.scr_window
;----------------------------------------------------------------
; Convert window height and width from characters to bytes
; Entry; IX points to window data block
; Exit;  If carry set, free memory count updated
;        If carry clear, insufficient free RAM - free_RAM unchanged
;        Always; B = height of window in pixel rows
;                C = width of window in screen bytes
;                HL = screen address of top left of window
;                A corrupt, IX, IY preserved
;                BC stored at (IX+size)
;                HL stored at (IX+addr)
;                A corrupt, IX, IY preserved
;                BC stored at (IX+size)
;                HL stored at (IX+addr)
;                Total window area stored at (IX+area)
;----------------------------------------------------------------
LD A,(IX+height)        ;Get height in chars
ADD A,A
ADD A,A
ADD A,A                 ;Multiply by 8
LD (IX+size+1),A        ;Store window height less border in bytes
ADD A,4                 ;Add 4 for border pixels
LD B,A                  ;B = total height in screen rows

LD A,(IX+width)         ;A = width in chars
ADD A,A                 ;Double it
LD (IX+size),A          ;Store window width less border in bytes
ADD A,2                 ;Add 2 for border pixels
LD C,A                  ;C = total width in screen bytes

LD E,A                  ;Move to E
LD HL,0                 ;Zero HL
LD D,H                  ;and D

.scr_w1
ADD HL,DE
DJNZ scr_w1             ;HL = DE * B

LD (IX+area),L
LD (IX+area+1),H        ;HL = size in bytes of (window + border) - save it
EX DE,HL                ;and move it to DE
LD HL,(free_RAM)        ;Get amount of memory free
SBC HL,DE               ;Subtract the two (setting carry if window too big)
CCF                     ;Complement carry flag (set if routine has succeeded
PUSH AF                 ;like other firmware routines) - save the flags
JR NC,scr_w2
LD (free_RAM),HL        ;If sufficient room, store new free memory

.scr_w2
LD H,(IX+column)
LD L,(IX+row)           ;Fetch character coordinates of top left of window
CALL SCR_CHAR_POSITION  ;Let HL = screen address of top left of text window
LD (IX+addr),L
LD (IX+addr+1),H        ;Save it (NB does not include border)
POP AF                  ;Restore flags
RET

.store_window
;-------------------------------------------------
; Copy current window area from screen into free RAM
; Entry; No conditions
; Exit;  AF,BC,DE,HL corrupt, (free_start) updated
;-------------------------------------------------

CALL set_up             ;Set up BC and HL
LD DE,(free_start)      ;Get address where can save data

.sw1
PUSH BC                 ;Save loop counters
PUSH HL                 ;Save screen address of start of line
LD B,0                  ;Make C a 16-bit number in BC
LDIR                    ;Copy C screen bytes into free memory
```

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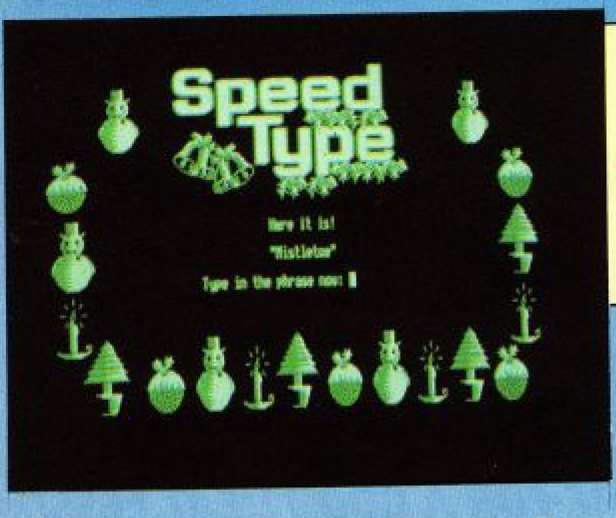
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A177

```
POP HL                  ;Get screen address
POP BC                  ;Reset C to width, fetch row count in B
CALL SCR_NEXT_LINE      ;Step HL down to start of next line
DJNZ sw1                ;Loop until all rows transferred

LD (free_start),DE      ;Update address where can save data
RET

.restore_window
;-------------------------------------------------------------
; Copy screen data from free RAM into screen, erasing window
; Entry; No conditions
; Exit;  AF,BC,DE,HL corrupt, (free_start) updated
;-------------------------------------------------------------

CALL set_up             ;Set up BC and HL
PUSH HL                 ;Save screen address
LD E,(IX+area)
LD D,(IX+area+1)        ;DE = size in bytes of screen window

LD HL,(free_start)      ;Get address where can save data
OR A                    ;Clear carry
SBC HL,DE               ;Point HL to address where screen data was stored

LD (free_start),HL      ;Update address where can save data
POP DE                  ;Move screen address to DE

.rw1
PUSH BC                 ;Save loop counters
PUSH DE                 ;Save screen address of start of line
LD B,Ø                  ;Make C a 16-bit number in BC
LDIR                    ;Copy C screen bytes into screen
POP DE                  ;Get screen address
POP BC                  ;Reset C to width, fetch row count in B
EX DE,HL
CALL SCR_NEXT_LINE
EX DE,HL                ;Step DE down to start of next line
DJNZ rw1                ;Loop until all rows transferred
RET

.set_up
;---------------------------------------------
; Set up registers to transfer current window
; Entry; IX points to current window variables
; Exit;  HL points to top left screen address
;        B = total height in bytes
;        C = total width in bytes
;---------------------------------------------

LD L,(IX+addr)
LD H,(IX+addr+1)        ;Fetch screen address of top left of text window
CALL SCR_PREV_BYTE      ;Step HL left a byte
CALL SCR_PREV_LINE
CALL SCR_PREV_LINE      ;Step HL up two lines

LD C,(IX+size)          ;Get window width
LD B,(IX+size+1)        ;Get window height
INC B
INC B
INC B
INC B                   ;Add 4 to B to allow for border
INC C
INC C                   ;Add 2 to C to allow for border
RET

.print_menu
;---------------------------------------------
; Set up text window and print the menu strings
; Entry; IX points to current window variables
; Exit;  IX preserved
;---------------------------------------------

LD H,(IX+column)        ;H = column of left edge
LD A,(IX+width)
DEC A
ADD A,H                 ;Add (width-1) to left edge
LD D,A                  ;D = column of right edge

LD L,(IX+row)           ;L = row of top edge
LD A,(IX+height)
DEC A
ADD A,L                 ;Add (height-1) to top edge
LD E,A                  ;E = row of bottom edge
PUSH HL
CALL TXT_WIN_ENABLE     ;Set up the window
POP HL                  ;ge
LD E,A                  ;E = row of bottom edge
PUSH HL
CALL TXT_WIN_ENABLE     ;Set up the window
POP HL                  ;ge
LD E,A                  ;E = row of bottom edge
PUSH HL
CALL TXT_WIN_ENABLE     ;Set up the window
POP HL                  ;Get top left text coords
CALL txt_to_gra         ;Convert text coords to graphics coords
CALL GRA_MOVE_ABSOLUTE  ;Move graphics cursor there

LD DE,-4
LD HL,4
CALL GRA_MOVE_RELATIVE  ;Move to start of outer border line
XOR A
CALL GRA_SET_PEN        ;Set graphics pen to Ø

LD H,Ø
LD L,(IX+size)          ;HL = window width in bytes
ADD HL,HL
ADD HL,HL
ADD HL,HL               ;Multiply by 8
LD BC,6
ADD HL,BC               ;Add extra for border
EX DE,HL                ;DE = outer width in coords

LD H,Ø
LD L,(IX+size+1)        ;HL = window height in pixel rows
ADD HL,HL               ;Double it
ADD HL,BC               ;Add border - HL = outer height in coords

PUSH HL                 ;Save height
PUSH DE                 ;Save width
CALL rectangle          ;Draw outermost border
LD DE,2
LD HL,-2
CALL GRA_MOVE_RELATIVE  ;Move graphics cursor to start of inner border line
LD A,1
CALL GRA_SET_PEN        ;Set graphics pen to 1
LD BC,-4
POP HL                  ;Get width
ADD HL,BC               ;Subtract 4
EX DE,HL                ;Move to width to DE
POP HL                  ;Get height
ADD HL,BC               ;Subtract 4
CALL rectangle          ;Draw innermost border

LD B,(IX+height)        ;Get number of strings for this window
PUSH IX
POP HL                  ;Copy IX to HL
LD DE,12                ;Size of variable area
ADD HL,DE               ;Point to strings for this window

.pm1
CALL print
DJNZ pm1                ;Fill the window with the menu strings
LD HL,&ØØØØ             ;Cursor to top left
CALL invert_bar         ;Highlight first bar
RET

.txt_to_gra
;-------------------------------------------------------------
; Convert text (character) coords to graphics (user) coords
; Entry; H = physical character column
;        L = physical character row
; Exit;  DE = user X coord
;        HL = user Y coord
;        AF,BC corrupt
;-------------------------------------------------------------

PUSH HL                 ;Save cursor column/row

LD L,H
LD H,Ø                  ;Now HL = column
CALL SCR_GET_MODE       ;Find out what mode we're in. A = Ø,1 or 2
NEG                     ;A = Ø,-1 or -2
ADD A,5                 ;A = 5, 4 or  3
LD B,A                  ;Use as loop counter in B

.tg1
ADD HL,HL
DJNZ tg1                ;HL = HL*32, 16 or 8, ie HL = standard X coord

EX (SP),HL              ;Standard X coord to stack, row to L
LD H,Ø                  ;Now HL = row
ADD HL,HL
ADD HL,HL
ADD HL,HL
ADD HL,HL               ;HL = HL*16
EX DE,HL                ;Move to DE
LD HL,399
SBC HL,DE               ;HL = 399 - 16*row
PUSH HL                 ;Standard Y coord to stack

CALL GRA_GET_ORIGIN     ;Now DE = origin X coord, HL = origin Y coord
LD B,H
LD C,L                  ;Move origin Y coord to BC
POP HL                  ;Get standard Y coord
OR A                    ;Clear carry flag
SBC HL,BC               ;Convert to user coord
LD B,D
LD C,E                  ;Move origin X coord to BC
EX DE,HL                ;User Y coord to DE
```

```
POP HL                  ;Standard X coord to HL
OR A                    ;Clear carry flag
SBC HL,BC               ;Convert to user coord
EX DE,HL                ;Swap X to DE, Y to HL as per firmware requirements
RET

.rectangle
;-------------------------------------------------------
; Draw a rectangle (outline) in current graphics pen
; Entry; Graphics cursor has been set to top left corner
;        DE = width in graphics coords
;        HL = height in graphics coords
; Exit;  AF,BC,DE,HL corrupted
;-------------------------------------------------------

PUSH HL                 ;Save height
PUSH DE                 ;Save width
PUSH HL                 ;Save height
LD HL,0
CALL GRA_LINE_RELATIVE ;Draw top edge

POP DE                  ;Get height
CALL neg_DE_to_HL       ;Negate it in HL
LD DE,0
CALL GRA_LINE_RELATIVE ;Draw right edge

POP DE                  ;Get width
CALL neg_DE_to_HL       ;Negate it in HL
EX DE,HL                ;Move to DE
LD HL,0
CALL GRA_LINE_RELATIVE ;Draw bottom edge

POP HL                  ;Get height
LD DE,0
CALL GRA_LINE_RELATIVE ;Draw left edge
RET
.key_loop
;----------------------------------------------
; Allow menu selection, process selected option
; Entry; IX points to current window variables
; Exit;  IX preserved
;----------------------------------------------

CALL flush              ;Flush keyboard buffers

.kl1
CALL KM_WAIT_CHAR       ;Wait for a key
CP &F0                  ;Up?
CALL Z,cursor_up        ;Process if yes
CP &F1                  ;Down?
CALL Z,cursor_down      ;Process if yes
CP 13                   ;Carriage return?
JR NZ,kl1               ;If not, loop back for another keypress

CALL do_prog            ;Else do the program associated with current menu bar
JR C,kl1                ;Loop if still logged onto current menu
RET                     ;Else exit

.cursor_up
PUSH AF                 ;Save keypress
LD A,L                  ;Fetch row
OR A                    ;Is current bar number 0?
JR Z,cu1                ;Can't move up if on top bar

CALL invert_bar         ;Else invert          ;Is current bar number 0?
JR Z,cu1                ;Can't move up if on top bar

CALL invert_bar         ;Else invert          ;Is current bar number 0?
JR Z,cu1                ;Can't move up if on top bar

CALL invert_bar         ;Else invert the current bar, turning it off
DEC L                   ;Move up one bar
CALL invert_bar         ;Invert selected bar, turning it on

.cu1
POP AF                  ;Restore keypress
RET

.cursor_down
PUSH AF                 ;Save keypress
LD A,L                  ;Fetch row
INC A                   ;and increment it
CP (IX+height)          ;Is current bar the bottom one?
JR Z,cd1                ;Can't move down if on last bar
CALL invert_bar         ;Else invert the current bar, turning it off
INC L                   ;Move down one bar
CALL invert_bar         ;Invert selected bar, turning it on

.cd1
POP AF                  ;Restore keypress
RET

.invert_bar
PUSH HL                 ;Save cursor position within window
LD H,(IX+column)        ;Get screen column of window left edge
LD A,(IX+row)           ;Get screen row of window top edge
ADD A,L                 ;Add row within window
LD L,A                  ;Put back actual row on screen
CALL SCR_CHAR_POSITION ;Now HL = top left screen address of current bar
LD C,(IX+size)          ;Get width in bytes of current bar
LD B,8                  ;Bar is eight pixels high

.ib1
PUSH BC                 ;Save loop counters
PUSH HL                 ;Save screen address

.ib2
LD A,(HL)               ;Get screen byte
XOR &F0                 ;Flip bottom bits
LD (HL),A               ;Put it back
INC HL                  ;Point to next byte
DEC C
JR NZ,ib2               ;Loop until screen line done

POP HL                  ;Fetch screen address
POP BC                  ;and counters
CALL SCR_NEXT_LINE      ;Step screen address to nect line
DJNZ ib1                ;Loop until whole bar done

POP HL                  ;Restore cursor position
RET                     ;Quit

.do_prog
PUSH HL                 ;Save cursor coords
LD E,(IX+prog)
LD D,(IX+prog+1)        ;DE points to first program address
LD A,L                  ;Cursor row number to A

.dp1
DEC A                   ;Decrement A
JP M,dp2                ;Skip forward once A reaches zero
INC DE
INC DE                  ;Else increment address pointer
JR dp1                  ;and loop back

.dp2
LD A,(DE)               ;Fetch low byte of program address
LD C,A                  ;Move to C
INC DE
LD A,(DE)               ;Get high byte of program address
LD B,A                  ;Move to B

CALL JPBC               ;Do indirect CALL to address in BC
POP HL                  ;Restore cursor coords
RET                     ;and exit

.JPBC
PUSH BC                 ;Push address in BC onto stack
RET                     ;and POP it into program counter, thus JumPing there

.exit
OR A                    ;Flag "quit current menu"
RET                     ;and return

.do_window_2
;-------------------------
; Set up format parameters
;-------------------------

XOR A
CALL TXT_STR_SELECT     ;Select text window zero (where disc error messages go)
PUSH AF                 ;Save previous window number
LD A,12
CALL TXT_OUTPUT         ;Clear system message window
LD A,2
CALL window             ;Open window 2, to select drive number and disc format
LD A,(sector)
OR A
CALL NZ,format          ;Do format if user didn't request abort
POP AF
CALL TXT_STR_SELECT     ;Select stream for current window
SCF                     ;Flag 'keep current window open'
RET                     ;and return

.neg_DE_to_HL
LD HL,0                 ;Zero to HL
OR A                    ;Clear the carry
SBC HL,DE               ;HL = 0 - DE
RET                     ;Exit

.window_table
WORD 0                  ;Dummy entry (best not to use window 0 - see text)
WORD window1
WORD window2
WORD window3

.window1
BYTE 13                 ;width
BYTE 2                  ;height
```

```
BYTE 4          ;row
BYTE 4          ;column
WORD 0          ;size
WORD 0          ;address
WORD 0          ;area
WORD prog1      ;programs

TEXT "Format a disc",0
TEXT "Exit program ",0

.prog1
WORD do_window_2
WORD exit

.window2   ;format A or B?
BYTE 10    ;width
BYTE 2     ;height
BYTE 5     ;row
BYTE 10    ;column
WORD 0     ;size
WORD 0     ;address
WORD 0     ;area
WORD prog2 ;programs

TEXT "Format A: ",0
TEXT "Format B: ",0

.prog2
WORD format_A
WORD format_B

.window3   ;format vendor or data?
BYTE 17    ;width
BYTE 3     ;height
BYTE 6     ;row
BYTE 15    ;column
WORD 0     ;size
WORD 0     ;address
WORD 0     ;area
WORD prog3 ;programs

TEXT "Format as vendor ",0
TEXT "Format as data   ",0
TEXT "Abandon format   ",0

.prog3
WORD format_V
WORD format_D
WORD format_Q
```

Listing II

```
.fB1
LD (drive),A            ;Store it in the drive variable
ADD A,65                ;Convert to ASCII for "A" or "B"
LD (drive_letter),A     ;Store it in the message string

LD A,3                  ;************ Insert this line
CALL window             ;************ Insert this line
OR A                    ;************ Insert this line

RET

----------------------------------------------------- this line
OR A                    ;************ Insert this line

RET
```

Listing III

```
.format_D
LD A,&C1                ;Sector number for data

.fD1
LD (sector),A           ;Store required sector number
OR A                    ;************ Insert this line
RET
```

Listing IV

```
.prog_end EQU $         ;************ Add this line to the end of the program

(ENDS)
        ;Can't move down if on last bar

CALL invert_bar         ;Else invert the current bar, turning it off
INC L   **** END ****
```

CAGE PAGE

Amster's cage is an area of Prestel where Amstrad computer users congregate. It is a melting pot for ideas. Ask a question and someone is bound to know the answer. Paul Needs acts as referee and has selected some highlights.

From MR SDW JONES
SAT 29 AUG 1987 18:31

I managed to follow Cliff L. & David F's advice and created a 2- line Basic program in Ascii. Then used Bascom.Com to obtain a .REL file. And finally L80.Com to make a file. However whilst doing this Baslib.Rel was required. Now I've got a .Com file to clear screen but 9k long!!! Why? Anyone able to enlighten me?

9k? Sounds like some of the Library has ended up in the COM file

From M C BRIGGS
SAT 29 AUG 1987 21:50

I seem to be having problems using 120 nanosecond chips as upgrades to 640k on my 1512 as some prog rams 'TAS PLUS' and '123' won't always run (although they both work with 512k) any offers?

I run flight simulator on a 1512 both colour and mono using the RGB monitor option – I wonder if this helps Neil?

No idea why that should be Martin, but perhaps Cliff can help you? I never use mono mode on the 1512 come to think of it, even though I have a DDMM.

From AMSTRAD PLC
MON 31 AUG 1987 21:11

As I remember it, ram upgrade chips for a 1512 should have an access time of 200nS or better. If I'm right then 120nS should be hunky-dory, however, I'm a little suspicious of "120" chips, in my day they were counted in multiple of 50 (50nS, 100nS, 150ns, 200nS....) Funny ole world innit.

From P M CONWAY
SUN 30 AUG 1987 12:55

I use rom based commstar package and would like to know if I can use the RS232 interface independently of the HV and HT roms. If so is it always on line just waiting for the commands from any comms software.

Indeed you can use the RS232 interface itself independently of the rom software plugged into it. It sits there waiting to be acknowledged by the computer.

From STEVE PROVOST
SAT 29 AUG 1987 22:05

My local shop repaired my monitor in six days! It cost 45 quid but was well worth it if only for speed & efficiency. Mancomp in Manchester are excellent in this respect too, you should give them a try. They do most repairs while you wait unless they haven't had a delivery from Amstrad.

From DAVID FOSTER
SAT 29 AUG 1987 23:49

Re: Protext using the DkTronics extra 64K ram. Protext won't make use of it at all, for the simple reason that it slows editing down if it is used to hold the document and has to switch it in and out all the time. The reason no mention is made in the manual is that when it was written, the DkT ram pack didn't exist. Promerge Plus does however make use of it, for two purposes. Firstly it uses it to store the second file during two file editing and secondly it uses any space left as a printer buffer, enabling background printing.

Thanks for the clarification David. I always tend to make this mistake with CPC Protext, as I've only used it with Promerge Plus on rom as well - it can be hard to remember where one starts & the other finishes.

From MR M J JOYCE
SAT 29 AUG 1987 15:42

In Sir Clive's day the Spectrum produced u, v and y signals not RGB, which were then encoded by a different PAL chip to feed the UHF modulator. That was why an i'face was needed with RGB mon. Cliff's mob sorted that out when they took over the Speccy.

From REV B W TOMLINSON
TUE 01 SEP 1987 18:08

Can anyone help? If you have used "setkeys" in CPM+ on the PCW to change your keys, is there a setkeys option to get things back to normal. After using Chitchat I have to reset the computer but would prefer not doing that.

I think the best way might be to create a SETKEYS file that has the normal settings for the keyboard - sort of the opposite of the one you use for Chit Chat, and invoke that after you quit the program.

From MR SDW JONES
WED 02 SEP 1987 18:16

I found the spike protector plug made by Smiths' (the electrical people) has done the trick for me. I use the plug on another socket in line with the power

plug which feeds the electricity to the 'pooter & tons of peripherals. I think they are available at most larger electrical stores. I bought mine mail order at just over ten pounds but electrical stores show prices between £8.00 to £10.00

From B DE-LARA
FRI 04 SEP 1987 19:53

Can anyone tell me if Kermit is P/D. And if it is where can I download it. I thought I would try and log onto Tug II tonight.I got through three times. Set Commstar to right settings, got the logon page and it asked for my first name. Typed it in pressed hash, nothing. Can anyone tell me what I am doing wrong. I seem able to receive ok. I take it TUG II's the same as Prestel for sending.

The Kermit protocol is indeed public domain. What software are you using Bryan? The data word, parity, and so on are NOT the same as Prestel. Most Ascii boards like TUGII use 8 data bits, no parity and 1 stop bit, so your software should be set to this before logging on.

From MR M APPLEYARD
SAT 05 SEP 1987 00:28

A point about mains interference: It is better, if possible, to cure the source of the interference rather than to try to reduce its effects on other equipment. Usual sources are refrigerators, immersion heaters etc... this is a much more efficient way of sorting out the problem.

Very true, but a) for the experts and b) potentially expensive.

From A R TURNER
THU 03 SEP 1987 20:21

I am hoping to get a DKT 64k ram pack for my 464. Is it possible to fit the 6128 ROM, and how would it affect the 464? Does it become a 6128 with a tape deck and external disc drive? Also is it easy to put in? I am not the best at doing things like that.

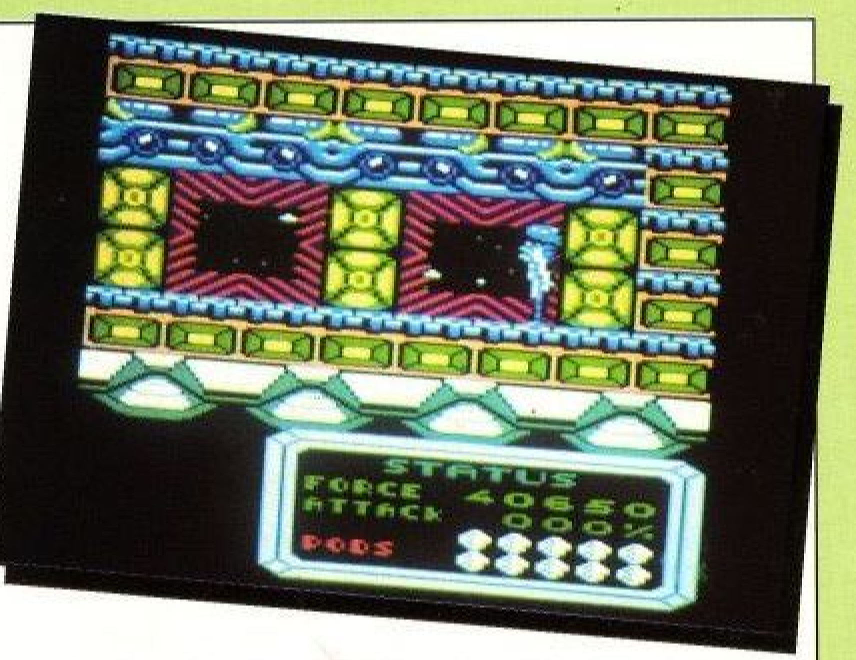
I believe so. It depends on how the present rom is fixed – if it's in a socket, you're ok; but if it's soldered to the board, things can get very messy.

From CHRIS SHELLEY
TUE 01 SEP 1987 18:12

Hi, could you help me? I need to know the connections for an Amstrad (v1) RS232 to an Enterprise 1 modem. I can't work them out.
Ooh. The Enterprise has a 25 way RS232 doesn't it? If so, connect as follows, 2-2, 3-3, 4-4, 5-5, 7-7(GND - braid) Then link pins 8 and 5 at the interface end.

ACU

SURVIVOR



DOWN the endless corridors of the ship silence gathered. The Masters hadn't expected anything out of the ordinary from the long-dead planet they orbited. It was a standard expedition, collecting, analysing and classifying the life of a galaxy that had long ceased to be a threat to the Masters technology. Perhaps the thousands of years had bred complacency, and the complacent were always most at risk from the desperate. The Creature was desperate.

It had been scooped, linked and put into stasis until the return home. But after a million years of survival on the dying planet that gave it birth the creature was aware of many things. It realised that the ship, with all its incomprehensible technology, was the only chance for the species. It had ways of fighting stasis as it had fought death over aeons of hopelessness, and the Masters hadn't noticed. Why should they? Just another creature for the xenobanks.

The machines that watched the ship noticed the creature escape. Then they saw it destroy the sensors that followed it. The engineers that serviced the sensors noticed the creature, indeed they could hardly miss it. It certainly had no intention of missing them; a million years of enfeebling struggle makes an alien peckish.

It was searching for the incubators. By dropping eggs in the warmth and nourishment so provided, the creature hoped to win at last. But there were other creatures from other worlds, escaping as the creature broke stasis. Some were hostile, angry at capture and hungry for revenge on anything that moved through the silent ship.

Others might be friendly, but the Creature had no way of telling, short of firing its acid at them. And even friendly beings react rather badly to gobbets of corrosion flying past...

The ship had 142 areas, divided among four sectors, and the creature roamed them all searching for places of safety. Passage was varied. Sometimes the corridors were broad and tall, sometimes the air vents and sometimes the service tracks provide the necessary access.

The Masters were getting worried. It had been a very long time since such basic low cunning and animal skill had been pitted against their infallible machines, and they had forgotten so much. The creature was fast, it was agile and it was learning from every encounter. It also showed no sign of slowing down as it tore through the mazelike ship.

However, some sensors suggested that this incredible entity was losing energy fast. But as long as it could grab luckless engineers and hook into the ship system the way it was, there would be no reason for it to stop before it reached its goal.

The Masters consulted. What was its goal? Obviously it needed to take over the ship, to guarantee the survival of its strange brood, but would it break every system first? Could the Masters escape if they failed to pacify this rampaging animal?

The creature didn't know. It didn't care. It knew just that it had to win. It had to survive. You have to survive. You have to be the survivor.

Author: Ocean
Price: £8.95

Nigel

The swept-back cranium, the acid expectoration, the intense dislike of anybody not yet dead... it looks like the Alien is back. And the old scour-the-ship plot's still in evidence. And so's the hoary old Spectrum conversion racket.

Still, if you haven't got a wander the maze with lots of creatures game you might enjoy this, but if you have you probably won't. I think I'm going to play something else now.

14/20

Liz

For an Ocean title this really lacked hype. None of the usual "We've got a mega fab, brill game, It'll be out any day now". Perhaps Ocean realised that this is not of the same standing as Renegade and Gryzor. Both good games, if of dubious morals. The scrolling stars were pretty.

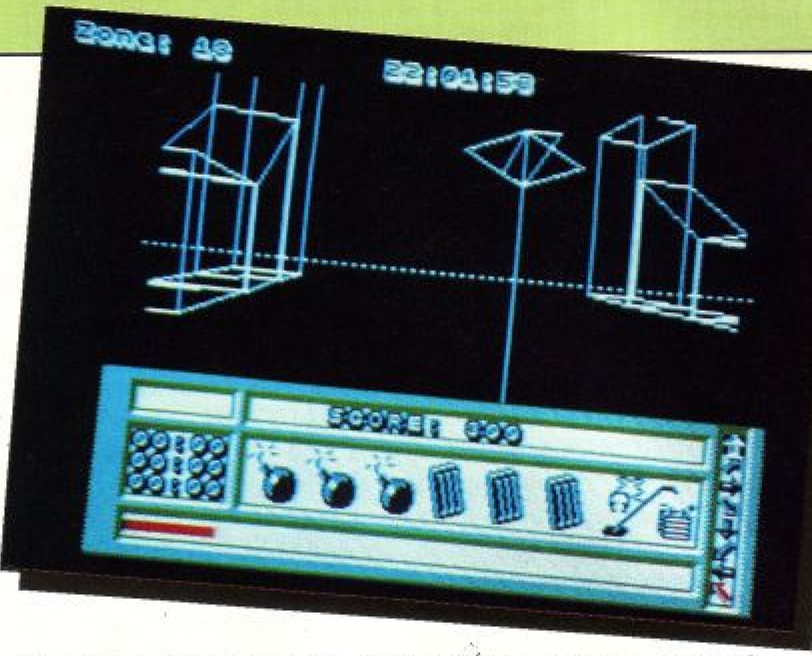
2/20

Colin

While the plot has plenty of scope it is unexciting to play. Your monster is graphically poor and everything is far too chunky. There have been many games like this, few less inspiring. The best thing is the packaging artwork; the worst is playing the game. I'm sorry, I found this one to be a non-starter.

8/20

CATCH 23



MORE armament antics from Martech. The enemy have finished their CK23 Orbital Interceptor. This is a space shuttle-like beast that hangs around in geo-stationary orbit until they decide that it's time to make a little mischief on terra firma. Our side are a little perturbed by this turn of events, so you are dispatched to the secret island base where it's been developed to complete the shuttle simile.

The island is part of the Wiaframe archipelago. First, you have to wander about the deserted villages and towns until you find the nuclear reactor. Then you steal the plans for the CK23, and turn on the Chernobyle emulation mode on the power station before making your escape very good indeed.

There's no point in mentioning the armed guards, patrols and other essential accoutrements for any island research complex. Why these people can't put their R&D establishments inland where they can guard them properly is beyond me. Ah well.

Fortunately for you, you are not totally alone. The Enemy abducted most of the world's top defence scientists and have forced them to work on the project. Most of the worlds top defence scientists are not happy. Moreover, seventeen of these brainboxes had absconded and holed out in various places on the island. There they developed a computer network, and worked together on a plan to destroy the SK23. They were on the point of executing their plan when they were discovered, and the civilian underground spirited them away.

You know who, but not where, they were. You also have their personal dossiers, and being able to identify who's terminal you've just discovered might allow you to work out what they were doing. Perhaps you can finish it for them. Maybe what you discover will save your skin. Maybe.

This precious dermatological component might also be preserved by your equipment. As well as an image-intensifier (you see them before they see you – a good start to any encounter), you also have a mine detector, a few bombs and a shooter. The batteries for the detector and the ammo for the piece are both limited. Fortunately replenishments are lying about.

While the enemy were disposing of the original natives of the island, and generally enemising (err....) the place they put up a sort of Island Light Railway. Your map shows a few stations, but there are more.

As you wander through the 3D landscape you can spot and investigate various objects. Everything is joystick, with a couple of keyboard presses to go into the more obscure action modes. If you come face to face with a patrol you get to shoot it out. But then he's trying to shoot your's out as well.

So, to sum up, there's an explore-the-map bit, a puzzle-the-computer bit, a shoot-the-baddie bit. Lashings of all of them, in fact. What more could the heart desire?

Author: Martech
Price: £14.95

Nigel

I don't know about the plot being (c) Martech. There was this game called Glider Rider which seems pretty damn close. But this is wire frame, and that was isometric.

This isn't bad at all, a bit slow to get into but soon engaging the intellect. Ignore the shooting bit, it seems to have been put in as a sop to the marketing bods, but the rest of the game is more than recompense once you twig what's going on.

I suspect it will be very satisfying to finish this one, and furthermore I suspect I'm actually going to bother. Wow.

18/20

Liz

So what's the catch? Well, aside from having armed guards, tanks and assorted nasties, this is a terra firma only Mercenary/StarGlider – like vector game. The mono display is not exactly cheerful. I liked the automatic gun sight which appears as quickly as does the guard.

The lack of ammo is a real disadvantage. Still that's what gives this game a learning curve. Follow it and you'll be hooked.

16/20

Colin

(Best policeman's voice) Cholo, Cholo, Cholo, what's all this then. *(Normal sexy Mel Gibson voice)* Yup, Catch 23 looks like the feeble Firebird frolic. But it is much more playable. The wire frame is commendably speedy and the solid armed guard sprites add a touch of realism. The first person view makes the game genuinely suspenseful. Not quite as taxing as Armageddon man but equally rewarding.

16/20

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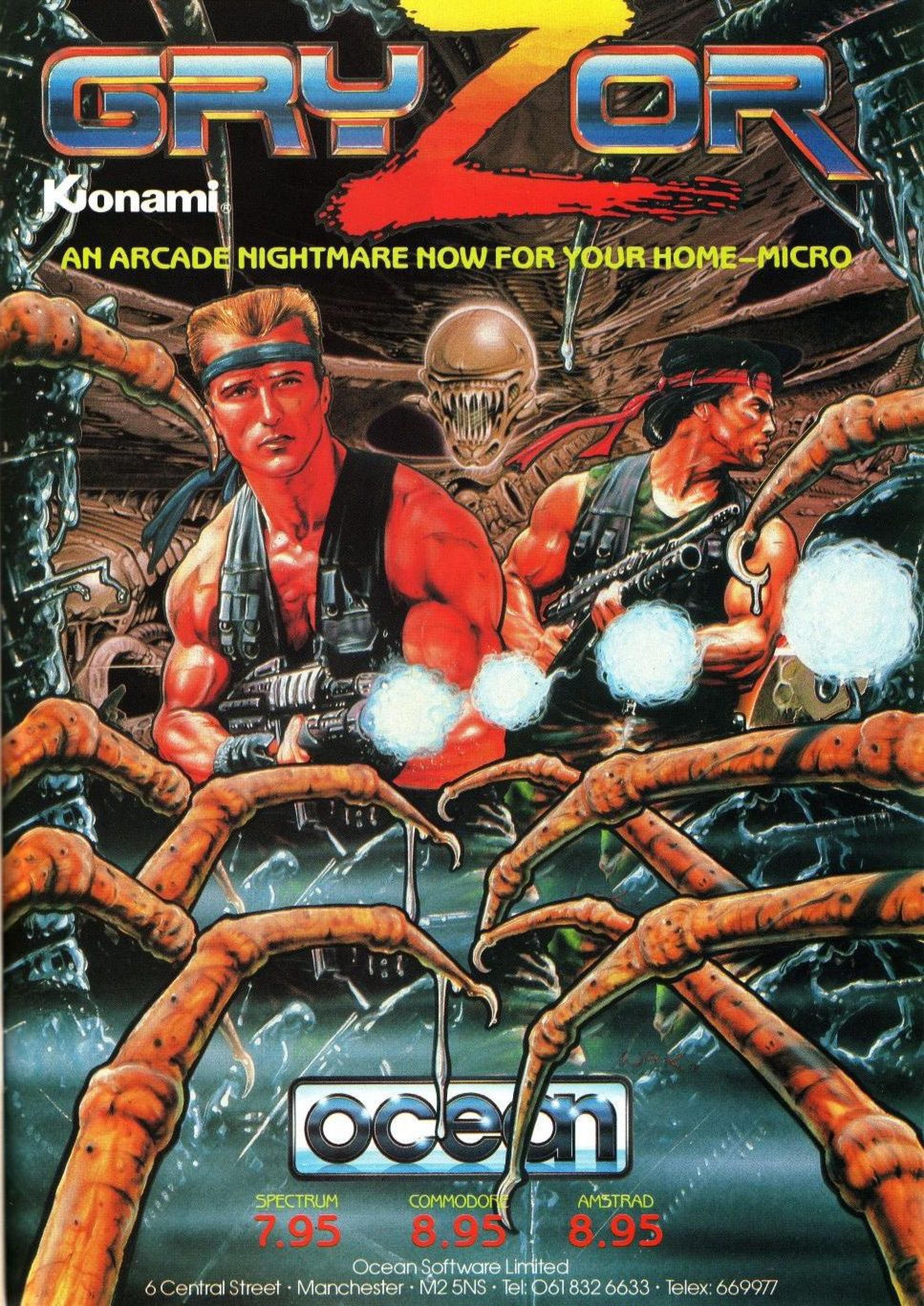
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ARMAGEDDON MAN

BORED with megagalactic megadeaths and adenoidal aliens? Want a real challenge? How about preventing Armageddon?

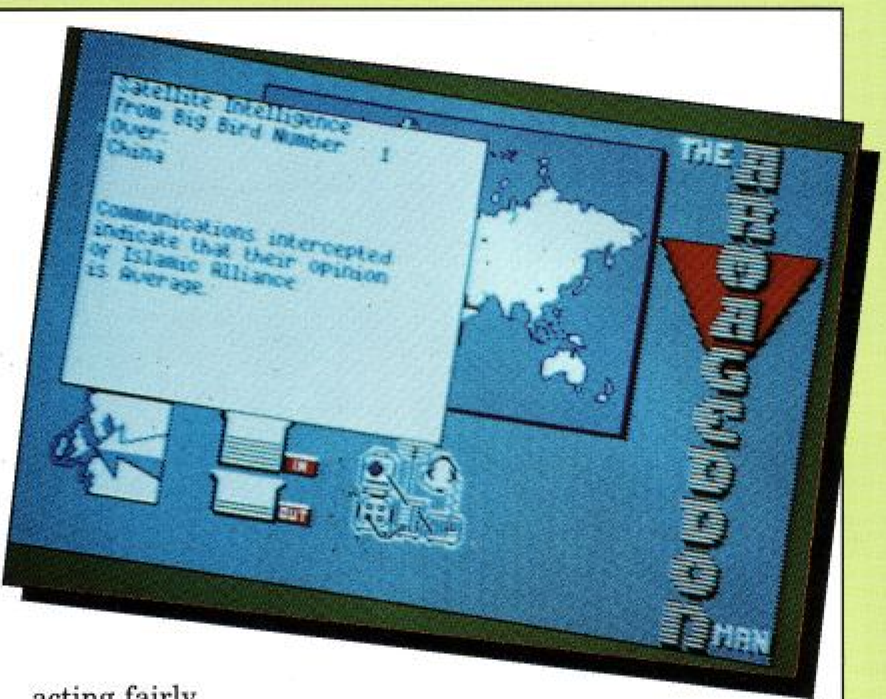
The year is 2032. Between 1987 and now, things have got rather worse, nuke-wise. (You didn't expect them to get better, did you?) Instead of the five nuclear powers of then, there are some 16 nations with the requisite hardware to make things glow with a bang. Among them are numbered such old friends as Israel and the Islamic Alliance, the Black African Republic and South Africa, and Libya v The Rest. Well it makes the 9 O'Clock News more interesting than it used to be.

As a minor concession to sanity (hoho), these 16 sovereign states have funded the UNN – United Nuclear Nations. This organisation is autonomous, and with the backing of a sophisticated spy network can effectively control any country for a while.

Its commander, the Armageddon Man (person?) holds the means to keep 16 disparate nations from wrecking the shop, both by deploying his conventional army or more normal diplomatic means. These include letters, food, and the laser satellites. Yes, those laser satellites.

Perched in your maproom, you can watch the world. You have three Big Bird satellites to deploy (that's two more than the Americans had back in '87 – chortle) to watch everybody, and sophisticated radio equipment to intercept all the interesting stuff. The countries concerned can (and do) ask you to help, tell you to get lost and interact in a number of interesting and only occasionally radioactive ways.

You have to monitor their relationships, decide which ones could lead to war and do your best to stop that happening. In the end, the countries don't have to do what you tell them, so you have to win their trust by



acting fairly.

And don't assume that all countries act fairly themselves. Your spy satellites might very well spot illegal weapons systems, troop movements or be jammed over an apparently friendly country.

There are a lot of things to do. Switching back to 1987, it's nice to see that the third annual Year of the Icon has been commemorated by Martech with a point and press interface of the finest quality over a map of the world. You also get another map on vinyl paper, with little re-usable maps to help you keep track of impending doom and imminent destruction. If you get it wrong you'll be sacked. That's if you don't irradicate the world first.

If this is Armageddon, armageddon out of here.

Author: Martech
Price: £14.95

Nigel

This is what I've been waiting for. The "diplomacy" style of game has been sighted on big computers (where it's called balance of power, or BOP), but this is the first world-juggling game I've seen on the CPC. It's good, almost superb.

It (necessarily) lacks some of the depth that BOP has, but it makes up for that by giving you slightly more things to do at once than is possible. In my first game I was congratulating myself on heading off a small but nasty war between Israel and Europe when Australia and Argentina wiped each other off the map. I take back that "almost". If you don't mind not sleeping at night, and have an ounce of intelligence, get this game.

19/20

Liz

This is a big game, it contains the kind of ingredients which ensure that you'll go back to it time and again. Martech has certainaly surprised me with this one. The window control is excellent and the game has a great addictive hold. The world has a safety valve in the form of your bosses. Try and blow the world up and you will get the sack. I know, I did it.

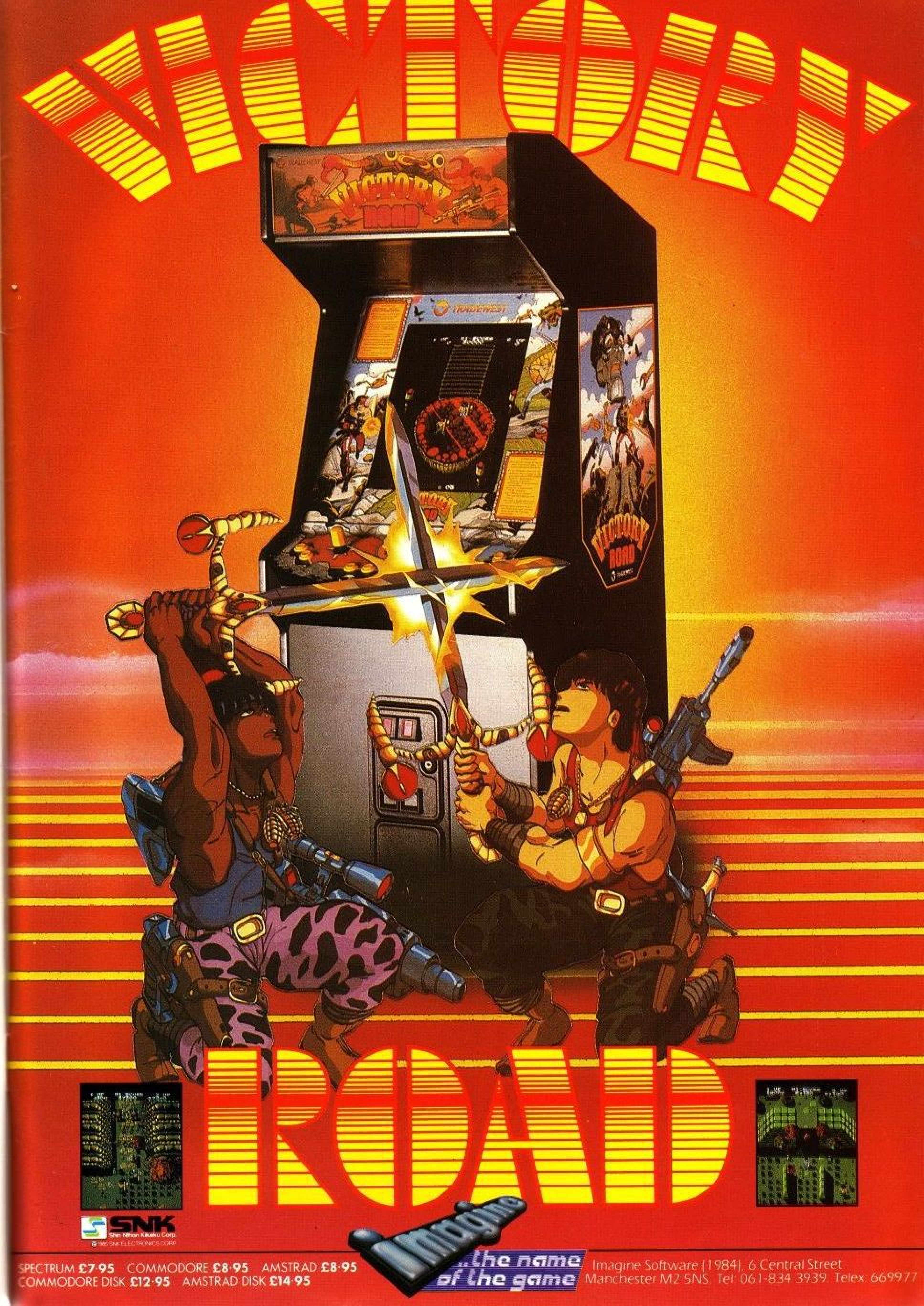
18/20

Colin

I used to think that being a diplomat meant wearing a white bow tie and sipping G and T's. I was wrong. You need to smile sweetly, keep an ear to the ground, eyes peeled and wave a big stick. Only contortionists need apply.

This is not a game to suit everyone's taste. It was a bit to cerebral for me, particularly since when I first got this for review I was in a real left/right fire mood. Fortunately the slick icon selection system reduced the graft necessary.

18/20


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Bundle 1: January 1986 to June 1986.
This contains a map of The Devil's Crown, pokes for Sorcery Plus, how to use the CPC's fourth mode and a shaded dump for DMP 2000 printers. Software reviews include: Brainstorm, the ideas processor; GAC, the adventure system; Laser Basic, the games writing aid and Rainbird's Music System. Among the hardware reviewed in this bundle is dk'Tronic's ram add-on, various serial interfaces, joysticks and a Teletext adapter. Gamesters will value the maps of Herbert's Dummy Run, Batman and Get Dexter. Programmers will learn from a collection of articles, including advice on music and the 6845 VDP.

Bundle 2: July 1986 to December 1986.
Articles include an exhaustive review of assemblers and art packages, the first full review of the PC1512, plus reviews of joysticks, printers and the Electro-Music Research Midi interface. Those readers who often find themselves clutching a sweaty joystick will appreciate the articles on flight and fight games, the Equinox map and the hints on Spindizzy. Programmers can type in programs like ZX Loader, Battle of the Cars, Interceptor and Double Trouble. And if you want to know who does what then there are interviews with Palace, Activision, Mastertronic and the sadly demised Mikro Gen. A bundle of fun.

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Back issues

1987 – January: Jailbreak, Starglider, Model Universe reviewed, PC games, Arnor interview, Frost Byte mapped, Crawler listing, Multi coloured CPC.
February: PC Programming, PCW Protext, CPC Listings. Top Gun and Gauntlet reviewed. The Secret of the Red Boxes plus all the regulars.
March: Nemesis preview, Music Machine – the ultimate Sound peripheral. Making the most of Protext, Machine Code manipulation, Elite Disc hack, background print spooler and US Gold interview.
April: Computer Journey – what makes your Arnold tick, the Men from Microprose, Amstrad RS232 reviewed, Sentinel from Firebird, back-up reminder program.
May: Ambug – Build it yourself robot, Empire review, Art Studio from Rainbird. Plumberdroid Lizting, Plan It, the house finance organiser.
June: Ranarama from Hewson, smooth screen scrolling, Head over heels mega map, Maxam II, Motor racing games, Citizen MSP printer, Machine code triangles.
July: Mission Genocide – exclusive preview. Computer Journey II, what makes your discs drive. Amstrad Vs Star wide printers. DK'Tronics battery backed up clock. Hewson interview. Parrotry art package.
August: Starfox preview, CPC through the crystal ball, how to program, Ultramon and Devpac machine code reviews, machine code breakout and Cheetah midi keyboard.
September: Living Daylights (the game of the film), a look at Amster's Cage, the HFP home finance for CP/M+. Looking at roms, how to de-bug programs, plus a look at CPC areas on bulletin boards.
October: Solomon's Key – guide to the ghouls, Protext and Tas-Sign advice. Firebird – who's who and why. Arnor C review. Precision's super fast printer and the Cage Page view from Micronet.
November: Amstrad LQ3500 24 pin printer – Full review. RoDos the disc drive's friend. Gryzor preview. Using masterfile. ACU survey report.

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ACU12

The Least Significant Bit

THE PCW Show brought with it the British Micro Awards. Amstrad won a special award, not for the 1512, but for the effect it had on the micro market. Perhaps it might have beaten the Acorn Archimedes if Amstrad had turned up on time for the judging.

As it was they had a frantic phone call which informed them that Amstrad were about to be disqualified. Thomas Power and Robert Goode (a.k.a. Richard Testa) switched into Caped Crusader mode and took the Batmobile (OK, an Amstrad company Astra) to the judges while Robert fitted a hard disc to the machine on the move. Do not attempt this feat, unless you too are a superhero.

The awards dinner was the number two event of the first night. Everyone who was anyone went to the Telecomsoft party. There the Magnetic Scrolls crowd were applauded for winning the British Micro Award for Guild of Thieves as best game. Ken Gordon from Mag 'Rolls was not over enthusiastic. "Oh good, another one", is an accurate quote. Magnetic Scrolls invite a tender for the job of extending their mantlepiece.

Someone who is clearly not a regular LSB reader is a pretty young woman who works overseas for Telecomsoft. At the party she approached another merrymaker and read his badge out loud. "Sir Clive Sinclair – Who the hell are you?" The two of them spent the rest of the evening on the dance floor.

New look ACU

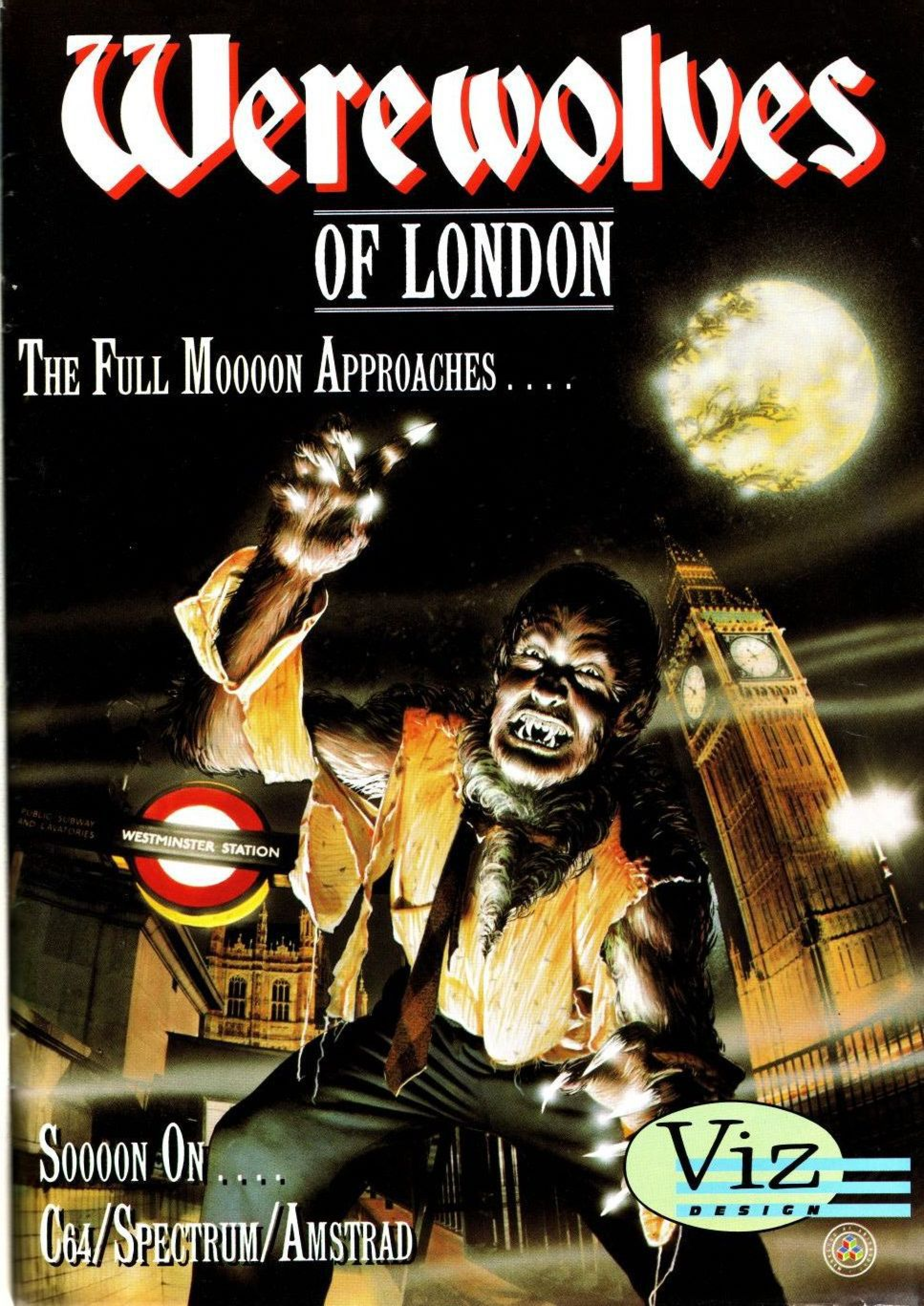
This month sees the first of many changes in your *Amstrad Computer User*. The front cover has been re-designed to give more space inside the box and a less stuffy logo. The changes inside start with a new series on Basic.

Next month we will re-design the pages to cram even more information on to each page. But all this is not going to mean we are moving down market, however successful Star Sunday Sport is.

The changes are a result of processing our reader surveys. There will be more on serious uses of Arnold, and games reviews will be beefed up to look at a few games in much more detail. Next month we hope to preview Star Wars from Domark – with a unique competition prize. We help you brush up on your artistic skills and reveal all the secrets in the amazing GO! game Trantor.

On sale December 12. Miss it at your peril.

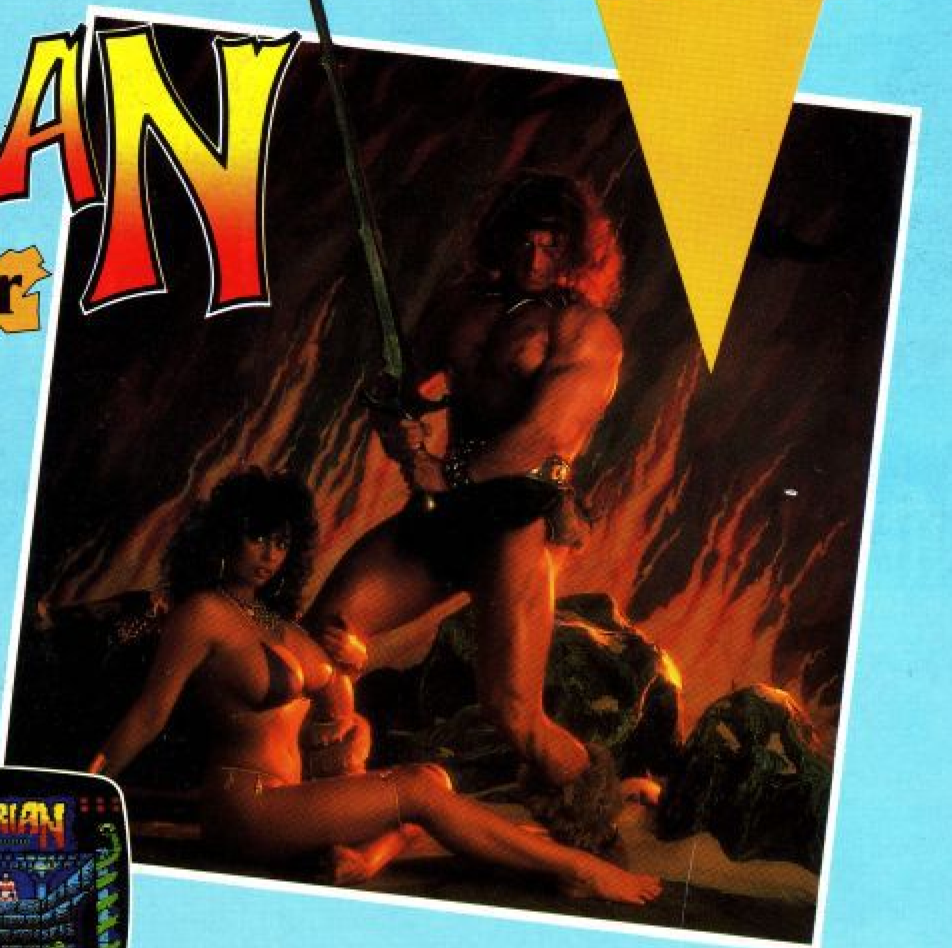
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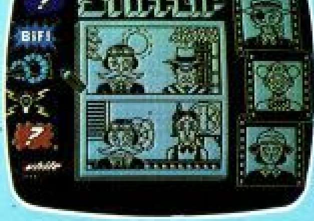
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